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INQUIRY

INTO

FRUIT GROWING CONDITIONS

IN

CANADA

W. H. BUNTING

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IN THE

DOMINION OF CANADA

BEING THE CONCLUSIONS REACHED AFTER A PERSONAL INVESTIGATION

BY

WM. H. BUNTING,

ST. CATHARINES, ONTARIO

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FRUIT INQUIRY

DOMINION OF CANADA, 1912

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LETTER OF INSTRUCTIONS.

OTTAWA, July 18, 1911.

W. H. BUNTING, Esq.,

St. Catharines, Ont.

DEAR SIR:—With respect to the special inquiry into the fruit-growing industry which you have agreed to undertake on behalf of this Department the following instructions are given you:—

You will please proceed with this work at an early date so that you may complete the inquiry before the end of the year and have a summary report ready for presentation at the Third Dominion Conference of Fruit Growers, which will be held some time during the coming winter. You may arrange your own itinerary, so as to visit all the principal fruit-growing sections in Quebec, Ontario, Maritime Provinces and British Columbia. It is desirable that you should also visit those localities in Manitoba and Alberta where apples are being grown with more or less success.

You will of course consult with the various Provincial authorities and officers of the Provincial Fruit Growers Associations, all of whom have been notified of the object of your inquiry and have been asked to assist you as far as it may be convenient to them to do so. You are also at liberty to make use of the services of the officers of this Branch stationed at the various points that may be covered by your itinerary. Arrangements will be made as far as possible for some one familiar with the different districts to accompany you as a sort of guide to facilitate your investigations.

A list of the officials in the various Provinces together with the names of many prominent fruit-growers is being prepared for your information.

The Minister approves of your visiting some of the more important apple growing districts in Washington and Oregon and also in the State of New York. It may be possible for you to arrange your itinerary so that you can attend the National Apple Show at Spokane, Wash.

You will please endeavour to secure as much information as possible on the following points:—

1. The possibilities of an extension of the fruit growing industry of Canada in the different localities visited.

2. The tendencies in the matters of the planting and growing of different kinds of fruit, and with regard to apples, the varieties which are being most extensively planted in the different districts. The tendencies to plant early or late varieties should be noted.

3. The difficulties which are likely to be encountered in the further development of the fruit growing industry.

4. Methods of production and orchard management which have been most successful in the different districts, and the probabilities of over production.

5. While in the prairie Provinces you will have an opportunity of studying the conditions under which British Columbia, Ontario and Maritime Province fruit is marketed in those Provinces. The character and the effect of American competition may also be inquired into.

It will not be necessary for you to gather any statistics as to the number of trees, acreage, &c., &c., as the particulars will be obtained from the decennial Census, which is now being taken.

You are not necessarily confined to the foregoing outline, but will be expected to use your own judgment in collecting any information that will be of value to the fruit growers, or others connected with the industry. Your long experience as one of the leading fruit growers of Canada, and your wide acquaintance with the industry in this country should enable you to form a correct judgment in seeking the information which will be most important.

Yours truly,

(Sgd.) J. A. RUDDICK,

Commissioner.

REPORT OF INVESTIGATION.

St. Catharines, Ont.,

February 1, 1912.

Mr. J. A. Ruddick,

Dairy and Cold Storage Commissioner, Ottawa.

Dear Sir.—In accordance with the foregoing instructions I herewith beg to submit a report of my observations during the past few months, in which it has been my privilege to visit very many of the principal fruit growing sections throughout the Dominion.

In the course of this investigation I have had an opportunity of meeting a large number of representative fruit growers at their homes and on their farms, and have discussed with them the conditions under which they were conducting their work, the difficulties encountered and the outlook for the future.

I have also tried to get in touch by correspondence or direct inquiry, with localities which for any reason I have not been able to visit personally.

The object of whatever is herein presented is to give a fair and unbiased opinion with regard to the conditions that obtain in the various Provinces, to emphasize those outstanding features which everywhere make for successful orchard culture, to call attention to methods and practices which warrant criticism, and if possible to assist to some slight degree in bringing fruit-growing in Canada a step farther in the advance march of the general progress of this country.

Yours truly,

(Sgd.) W. H. BUNTING.

ACKNOWLEDGMENTS.

At the outset I wish to extend my hearty thanks to the officials of the various Departments of the Federal and Provincial Governments, who have placed the facilities of their Departments at my disposal, and who have taken considerable interest in the inquiry; to the many individual fruitgrowers in all parts of the country who have received me so cordially; and to Mr. F. H. Grindley, B.S.A., of Macdonald College, who has accompanied me throughout the entire trip, and in the capacity of Secretary has proved extremely capable and has been at all times willing and efficient.

I am also under obligations to many correspondents in the different Provinces who have so freely replied to my letters of inquiry and have supplied me with information on various matters of interest in connection with the Fruit Industry.

INTRODUCTION.

Fruitgrowing in Canada has passed through various stages in the course of its development, from the days when the early pioneers planted a few seeds in their little clearings in the woods, until the present time, when it has taken its place as one of the most important phases of the Agricultural Industry of the Dominion.

It has been a matter of surprise to many people of other countries, who claim to be intelligent and more or less acquainted with the possibilities of the North American Continent, to learn that the vast country situated north of the 49th parallel and the Great Lakes can not only grow fruit in large quantities and in widely distributed areas, but as a matter of fact produces the fruits of the Temperate Zone in the most abundant manner, of the very highest quality, and with such regularity and freedom from uncertainty as to make the undertaking from a commercial standpoint, one of the safest and most profitable branches of Agriculture. Of course this statement should be qualified with the proviso that judgment be exercised in the first instance, with regard to the selection of the varieties of fruit to be produced, the markets to be catered to, the available means of distribution as well as the existing soil and climatic conditions.

Canadian fruit of all kinds, when brought into competition with similar fruits from other countries, has not only compared favourably, but, in common with many other Canadian Agricultural products, has in numerous instances completely outclassed its competitors in the matter of quality and appearance, and has time and again carried away the highest honours. A casual glance at the sales sheets of the various wholesale houses of Great Britain will disclose the fact that, as a general feature of the trade, Canadian apples usually command from one to two shillings per barrel more than those of their competitors. It is perhaps a matter of regret that at times in the past the Canadian fruitgrower has not realized the value of this asset, and in consequence has not taken the pains to adequately safeguard himself in this respect in the public markets, by upholding the reputation for quality and intrinsic value which has been obtained for our fruit at the expense of considerable time and effort. There are many notable exceptions to this criticism, and from one end of the Dominion to the other there are to be found many careful, conscientious, enterprising and successful fruitgrowers who, having devoted their energies to the work of establishing a reputation for their name and brand, have reaped substantial benefits therefrom, to say nothing of the personal satisfaction which such a course carries with it.

During the past few years the efforts of the Departments of Agriculture the Fruitgrowers' Associations and the Co-operative Societies throughout the Dominion have been largely directed towards emphasizing the above-mentioned feature of the industry, and bringing to the attention of the average grower the immense importance of giving special consideration to advanced methods in the production, handling and distribution of this product. These efforts are producing marked results, and a very decided movement is in evidence towards placing in the market a very large percentage of high quality Canadian fruit.

To any one having a love for Nature and her products there is to-day in many parts of Canada a bright and promising field for a successful career in the delightful and interesting work of sharing in the development of this industry, one which means so much to the comfort and well-being of the community at large. In the pursuance of this career, however, care must be taken to thoroughly investigate the conditions pertaining to any given locality, to ascertain the class and varieties of fruit that have been proven successful and profitable, to select suitable soil, and to become thoroughly acquainted with many features of the problem of producing high class fruit, either by personal experience or from the experience and judgment of others who have spent years of time and effort in acquiring first hand knowledge. Attention to these factors, coupled with energy and a fixed determination to overcome difficulties and obstacles which are likely to be encountered, will, in nearly every case, lead to ultimate satisfaction and success.

Having regard to the wonderful expansion of Canadian industries, the large number of people who are now looking to Canada as their prospective home, and the evident tendency of the people to use more fruit as a daily article of diet, it would seem that the present activity towards an increased production of fruits of all kinds is justified, and should be encouraged in every reasonable and legitimate way.

Should the perusal of the results of the inquiry made during the past few months by the writer be the means of assisting even in a limited way those who may be contemplating this occupation as a life work, and of adding but a little to the already varied and important literature on this subject, the time and effort spent in this investigation will not have been altogether in vain.

ITINERARY.

In considering the various sections of Canada which have been shown to be adapted for fruitgrowing, I would call attention to the fact that Mr. A. McNeill, Chief of the Fruit Division, has, as a result of his observation and experience, divided Canada into a series of ten districts, which do not necessarily conform to the provincial boundaries, but which have been worked out more especially in accordance with climatic conditions, and a intended to give a very fair and accurate idea as to the capabilities of these several districts and the varieties of fruit for which they are best adapted. Although it is a number of years since these divisions were outlined, experience has shown that, with some minor changes, they have proved to be remarkably correct and authentic, and have served as a standard for any reliable estimates that have been made from time to time as to the prospects or probable volume of fruit production from year to year in connection with the fruit crop reports, or other literature that has been issued for the guidance of the public.

In the following pages, however, in describing conditions as observed by the writer, the provincial boundaries will be to a very large extent adhered to, in order that an idea may be obtained of the comparative conditions prevailing in the different provinces. Commencing with New Brunswick the general course of the trip will be followed throughout the various provinces in order.

NEW BRUNSWICK.

The Province of New Brunswick, while not generally considered as being particularly adapted for the production of the more tender fruits of the temperate zone, has large areas of excellent land well suited for the successful growth of such of the more hardy fruits as succeed in similar latitudes. Owing to climatic conditions and the fertile nature of the soil these fruits reach an excellence and quality here that cannot be secured in many localities where milder conditions prevail.

Early Efforts at Fruitgrowing in New Brunswick.

The growing of apples has been carried on for many years—in fact ever since the first settlers located on the banks of the beautiful St. John River, and planted the seeds of the apple in their small clearings. Slowly and gradually the industry has progressed until at the present time it is becoming an important factor in the agricultural activities of this Province.

Francis Peabody Sharp.

New Brunswick was fortunate in those earlier days in having not only inhabitants who had been accustomed to fruitgrowing in their former homes, but also among their number men whose names will go down in the History of Canadian Horticulture as wise, painstaking and successful pioneers. Notable among this class was the late Francis Peabody Sharp of Woodstock, who early began a series of extended operations which had for their object the production of a variety of fruits which might prove hardy and of value in his adopted home country. That he was eminently successful is testified to by the general esteem in which Mr. Sharp is held, not only in his own Province but also in the adjoining Provinces of Prince Edward Island and Nova Scotia. While many of Mr. Sharp's ideas and plans have not survived the onward march of progress in advanced Horticultu.., yet it must be recognized that in those early days he rendered a service to his own Province and to Canada of enormous value from a horticultural standpoint.

Demonstrative Orchards.

In this Province at the present time a most active campaign is in progress in connection with the adoption of approved methods of orchard culture and the extension of the orchard area. Mr. W. W. Hubbard, Secretary of Agriculture, himself an enthusiastic fruitgrower, ably assisted by A. G. Turney, B.S.A., who has lately been appointed Provincial Horticulturist, has undert en a very comprehensive movement in the way of selecting and establishing e a-tional centres in the various districts where orcharding is likely to prove succe ful from a ommercial standpoint. These so-called Demonstration Orchards are attracting public attention to a very marked degree, and the results are being carefully watched by neighbouring fruitgrowers. The beneficial effects of proper treatment are very much in evidence in every orchard of this kind visited by the writer. This work can have only one result, which will be the arousal of a spirit of enthusiasm and the adoption of similar practices by the fruitgrowers of these localities, in order that they too, may secure more satisfactory returns from their orchards.

Good Fruit Land Very Cheap.

The area of young orchards is increasing very rapidly and there is no doubt, from the interest that is manifested, that it will not be many years before apples will be a considerable factor in the exports of this Province. There is a very

large area along the St. John River and its tributaries which may be utilized for orchard purposes. This land may be obtained at a comparatively low cost and offers very fine possibilities to any who may desire to secure a home for themselves in a community where social and educational advantages are good where transportation facilities are excellent and where markets are assured.

Pioneer Work Already Done.

Many years of experiment have now pretty well demonstrated those varieties of apples covering the season which are most likely to succeed here and prove profitable, so that the prospective fruitgrower may enter upon the enterprise assisted by the experience and results of those who have done the pioneer work and have successfully established themselves in many places, in comfortable homes and on well managed farms.

Many Fruits Grow Wild.

Throughout the Province one is immediately attracted by the profusion of hardy fruit trees of various kinds which are found growing wild on the roadsides and in the forests. This fact alone would give a favourable impression as to the general adaptability of those sections for fruit production under careful, intelligent methods. Consequently one is not surprised to find that first impressions are corroborated and emphasized upon the farms of many who have taken up the growing of fruit in a larger way.

St. Stephen.

In the vicinity of St. Stephen the growing of small fruits has attained considerable importance, and it would be difficult to find finer fruit or more luxuriant growth of plant anywhere than was in evidence on the strawberry plantation of Messrs. Donald & Son of the Pine Grove Fruit Farm. So far an excellent local market has always been found for all the small fruits that have been produced, and there is no doubt that the plantings could be greatly extended, in view of the larger markets available. In this section there are some comparatively important apple orchards, but in this regard also there is ample scope for extension.

Woodstock.

In Carleton County, of which the town of Woodstock is the centre and, as already mentioned, the scene of the late Mr. Sharp's efforts, the orchards are by no means as thrifty or profitable as they would have been if operated in a more intelligent manner. It is to be regretted that the foundations laid by this gentleman have not been built upon and followed up with energy and success. A very small percentage of the land suitable for orcharding in this locality is at present being devoted to that purpose.

Mr. Tappan Adney, a son-in-law of the late Mr. Sharp, devoted considerable time to an explanation of the conditions which have led up to the present lack of interest in this particular section. He is, however, sanguine that with the general revival of fruitgrowing in New Brunswick, Carleton County will take its rightful place as one of the most important fruit-producing sections of the Province.

Fredericton.

In the vicinity of Fredericton the first demonstration orchard under the the control of the Provincial Government was found on the farm of Mr. Joseph Hawkins, and this was visited in company with Mr. A. G. Turney. In this

orchard, which for many years had been neglected, the results of Mr. Turney's work in renovating an old orchard were very much in evidence, and its improved appearance from every standpoint was attracting the attention, not only of those in the immediate neighbourhood, but of every passer-by. Mr. Turney is to be congratulated upon having the courage of his convictions, and at the very outset of his work in these various demonstration orchards he has set up in a prominent place a large placard inviting the public who might be interested, to take particular notice of the methods adopted and the results accruing therefrom.

Mr. Gilman's Fruit Farm.

In this vicinity is situated the farm of Messrs. J. C. Gilman & Son. This place is perhaps one of the most systematic and best cultivated fruit farms in New Brunswick and will well repay a visit from anyone who may consider taking up fruit-growing as an occupation in this Province. Mr. Gilman has no fear of over-production of high class fruit, but believes that there is at the present time a very important opening at Fredericton for an industry that would take care of such surplus fruit products as might not be adapted for shipment to the markets in their fresh condition.

At Maugerville, on the banks of the St. John below Fredericton, is another demonstration orchard which has been planted on a class of land not generally considered desirable for orcharding. In the spring of the year this interval land is subject to overflow from the river and is very rich and fertile, being, perhaps, better adapted for crops of hay and vegetables. However, this orchard, which had been kept in sod since being planted, was doing very well, and was of interest as demonstrating that even upon this class of land fruit could be produced successfully under proper management.

St. John Valley Fruit and Land Co.

Further down the river at Burton, where there are already some well-established orchards, an extensive movement has been undertaken whereby it is expected to bring under cultivation some 1,200 acres of excellent land, a large portion of which is virgin soil and is now being rapidly cleared. On this property, when visited, extensive operations were being prosecuted with considerable vigour in clearing the land and preparing it for further planting. Last spring some 1,900 trees had been planted out with remarkable success, practically all having made an excellent growth during the season. The varieties of apples planted in this block were as follows:—Wealthy, Duchess, Wolf River, Fameuse, McIntosh Red, Alexander and Talman Sweet, the latter to be used as stock for top-grafting as occasion might warrant. It is the intention of this Company to operate a large portion of this property as a commercial orchard, the balance to be sub-divided and disposed of to any who may be desirous of locating in this district.

During the past summer an important step has been taken by the Boards of Trade of several Municipalities to establish commercial orchards on a comparatively large scale. This fact is very strong evidence of the confidence which business men of the Province have in the future of the apple industry of New Brunswick.

Room for Extensive Commercial Orcharding.

There is ample room in New Brunswick for the establishment of other organizations with sufficient capital to undertake commercial orcharding in a large way and it is to be hoped that others may be induced to enter this attractive field. At the present time it might be somewhat difficult to establish Co-opera-

tive organizations amongst the individual growers from the fact that they widely separated. The establishment of large holdings in desirable localit would, in all probability, form the nucleus at a later date, whereby individ growers might be enabled to join forces in the establishment of central packi houses for the Province.

Several other farms were visited during the trip down the river, of whi perhaps the most important were the large orchards on the property known the Cossar Farm. At this place careful methods are being put into effect, a the crop gives evidence of responding to the treatment which the orchard h received. A good deal of the fruit from this farm is packed in boxes and M Meiklejohn, the Manager, hopes to export some of his best grades to the O Country.

Value of Sheep in Sod Orchards.

Man of the orchards along the banks of the river, doubtless to economi labour, have been allowed to go into sod, some of them remaining in this conditi for many years. In nearly every case they show very great depreciation fro lack of care. One solution of this difficulty would, in all probability, be t maintaining of large flocks of sheep in these hillside orchards where cultivati cannot very well be practiced. An evidence of the good effect of such practi was found on the premises of Mr. Bayard Slipp at Hampstead, who for a numb of years has operated his orchard in this manner. The foliage of the trees w remarkably healthy, and the fruit of good size and very clean, forming a remar able contrast to other orchards in the neighbourhood where the ordinary s culture obtained.

Mr. S. L. Peters, one of the veteran fruitgrowers of this section, stat that it was only of recent years that people in New Brunswick had realize that fruit might be grown successfully. In the early days, when he had carrie fruit in baskets to the city of Fredericton, people there were much surprise and could hardly credit him with its production.

An apple that does extemely well in this district is the Bishop Pippin known elsewhere as the Yellow Bellflower. Mr. A. P. Slipp of Upper Hampstea values his trees of this variety at $100 each.

Small Fruits do Well.

As the city of St. John is reached, the smaller fruits are more generall cultivated, and large areas are devoted to strawberries, raspberries and currants which find a ready market in the neighbouring city.

Seaport of St. John.

St. John is favourably situated for the export trade of apples during th winter season, there being regular sailings of the C. P. R. and Allan Line steamer to Great Britain. Such is not the case, however, for the early fall trade, shipper being practically confined to one line of steamers whose sailing dates are irre gular and who are frequently delayed at Halifax for a considerable time awaiting cargo. This condition is of course detrimental, if not disastrous, to the shipment of more perishable fruits in the early part of the season. As the apple crop o New Brunswick increases the question of suitable facilities for the export trad in the early season will become much more important, and will require consider- able attention.

Excellent Opportunities.

In regard to this part of the Province it might be well to state that there is possibly no district in the Maritime Provinces where cheaper or more suitable

land can be found for the growing of hardy winter apples, where educational facilities are more convenient, or where transportation is better, than in the St. John River Valley at the present time, and it may reasonably be expected that the development of this section will be one of the horticultural features of the next decade.

Moncton.

Our next stop was at Moncton, in the vicinity of which the large orchard of Mr. H. L. Steeves was visited, a portion of which has also been selected as a demonstration orchard for this district. Conditions here show careful management on the part of Mr. Steeves and he was reaping the reward of his energy in the shape of a magnificent crop of fine, healthy fruit which showed practically no blemishes of any kind.

The Welling Orchard.

In this district probably the largest individual orchard in the Province is to be found, owned by Mr. Geo. L. Welling. It comprises about three thousand trees, is well taken care of, and has proved a very profitable portion of the farm. Mr. Welling practices clean cultivation, and adds phosphoric acid and potash from time to time; he also pastures his orchard with sheep every fall. He is one of that rare type of men who have been able, while working alone and upon their own individual responsibility, to conduct their orchards along lines of improved management. His orchard shows careful attention extending over a period of years. Men of this stamp would be invaluable in any community if they could be persuaded to take a general interest in the welfare of the surrounding country, and impart to others the practical knowledge which they have gained by close observation.

There are several points in northern New Brunswick, such as Chatham, Bathurst and Newcastle, where fruitgrowing has been attempted to some extent and is proving more or less successful.

Before leaving New Brunswick a word or two might be said with regard to several features that have come to our attention. The general tendency, as already stated, is to allow the orchard to remain in sod from year to year, removing annual crops of hay and adding little in return. Wherever this custom has been practiced the trees show the result of it in weakened vitality, unthrifty appearance and lack of productiveness. In addition, insect pests and fungous diseases obtain a foothold, spread rapidly and become a menace to the neighbourhood. The apple maggot was found in some orchards of this character, with little attempt made to control it or prevent its spread. No doubt steps will be taken to remedy this state of affairs, as interest in horticulture is likely to increase under the campaign which has lately been inaugurated in the Province to improve the present orchards and induce larger plantings of approved varieties.

The following list of apples is recommended by the Provincial Horticulturist as likely to give satisfaction and prove profitable.

Crimson Beauty	Early
Yellow Transparent	
Duchess	
Dudley	October, November
Alexander	November to March
Wolf River	
Wealthy	
Fameuse	
McIntosh Red	
Ribston Pippin	Best top grafted
Bishop Pippin	Top grafted keeps into April
Bethel	Keeps into May

Other varieties of a promising character are being tested as to their value from a commercial standpoint, and will be reported on from time to time.

PRINCE EDWARD ISLAND.

Prince Edward Island, known as 'The Garden of the Gulf,' was reached on the evening of July 26, and we were met on arrival at Charlottetown by Mr. Theodore Ross, Secretary of Agriculture for the Province, and Mr. A. E. Dewar, Secretary of the P.E.I. Fruitgrowers' Association.

A. E. Dewar's Fruit Farm.

Mr. Dewar's fruit farm and orchards were first visited, and here we found conclusive proof of the profitable character of fruitgrowing under intelligent methods. Every foot of this property was utilized to the fullest extent, and the net returns would no doubt surprise many who look with indifference upon the small farm. Strawberries and gooseberries are the principal small fruits grown they have proved very profitable. Among apples, Alexander, Ben Davis, Fameuse, Ribston Pippin, Wolf River and Ontario are the favourites and all succeed well in this locality.

Available Markets.

The Island of Cape Breton, containing a large mining and manufacturing population, easily reached from Charlottetown by boat is the principal market for the fruits and vegetables grown in this vicinity, although there is also a large local demand. There are quite a number of orchards, none of them very large, in the various towns and cities scattered throughout the Province, within a short radius of the Capital, but as the majority of the owners are engaged in mixed farming, these orchards, owing to press of other work, fail to receive proper care and treatment and consequently are not doing as well as they might under more favourable conditions.

Many Good Farms.

The custom of continuously growing grass and grain in the orchards from the time of planting is much more in evidence in Prince Edward Island than in New Brunswick, and in consequence we found many who counted the orchard as a rather uncertain asset to the farm. There are of course many exceptions to these conditions, and at the farms of Frank Bovyer at Bunbury, John Annear at Montague, Percy Robertson and Messrs. McIntyre and Son at New Perth, Colin Craig at Middleton, and others who might be mentioned, were found men who were giving the best of attention to their orchards and, like Mr. Dewar, doing well, and quite enthusiastic about the future of fruitgrowing on the Island. Indeed Mr. Theodore Ross is of the opinion that the day is not far distant when Kings County will have become as important a fruit-producing centre as portions of the Annapolis Valley of Nova Scotia.

Co-operation Necessary.

The outstanding feature of the situation here at the present time is the need of co-operative effort on the part of the people to produce a larger quantity of superior fruit and thus be enabled to command better transportation facilities and attract the attention of the public to their product.

The Experimental Farm recently established near Charlottetown, under Federal auspices, in charge of Mr. J. A. Clark, will no doubt prove very useful

in providing a place where the younger generation may study conditions and acquaint themselves with the class and variety of fruit most likely to succeed and prove profitable in different localities in the years to come. The services of an expert Horticulturist, whose whole time could be devoted to assisting the orchardists in field work on their farms would no doubt prove very valuable and might inaugurate a campaign such as is in progress in New Brunswick at the present time. The soil is fertile and productive and the cultivation of the land does not present the problems and difficulties that are to be found in less favoured sections.

Faulty Distribution.

Under existing conditions, large quantities of early fruit go entirely to waste in a season of full crop, while later in the season importations of apples for local consumption are at times obtained from Ontario and Nova Scotia. The blueberry fields in the vicinity of Mount Stewart and other parts of the Island are of considerable extent, and furnish employment to a large number of people during the season, large quantities of fine fruit being sent to outside markets.

General Farming Profitable.

It is quite probable that, owing to the ease with which general farming has been conducted on this Island on account of its remarkable fertility, and the comparatively large returns that are at once available, there has not been the same inducement to the people to engage in an industry which to some extent was untried and might be considered uncertain, when right at hand there were numerous opportunities of sure and certain returns for their labour. The pioneer work in orcharding, however, has already been undertaken and success has been achieved. It now only remains for many upon the Island who, not content with making simply a comfortable livelihood from their farms, will take up the work of producing fruit of the quality which the Island is capable of growing, and thus secure for themselves the same advantages that are being reaped by others who have been more aggressive and enterprising.

All kinds of small fruits, particularly strawberries, currants and gooseberries, do extremely well in this Province, and those who have been engaged in their culture in a large way have found it very profitable. While the market is to some extent limited, it is capable of absorbing considerably more of these fruits than are at present produced and larger plantings might safely be encouraged.

Plums and pears are grown to some extent, but are not considered commercially profitable. The same may be said of grapes, although it is quite possible that varieties of all these fruits of great value, may yet be introduced and distributed.

There is considerable difference of opinion as to the best varieties of apples to be recommended, but the majority of the growers agree on the following as the most desirable of proven kinds.

Early.	*Midseason.*
Astrachan,	Duchess,
Tetofsky,	Wealthy,
Yellow Transparent	Gravenstein top grafted,
	Alexander,
	Wolf River.
Winter.	
Peewaukee,	Inkerman,
Ben Davis,	Bishop Pippin, top grafted.

NOVA SCOTIA.

High Class Fruit Always in Demand.

Crossing from Charlottetown to Pictou, we entered the Province of Nova Scotia on the morning of August 2. Our first interview was with Mr. Munro, wholesale and retail dealer in fruits at Pictou. This gentleman emphasized the point which has been brought up time and time again by the dealers in all parts of the country as to the difficulty of securing a high class product, carefully handled and offered for sale in good condition. He is confident that if fruitgrowers would pick and pack their crop more carefully they would realize much more satisfactory returns for it.

Hydraulic Ram.

Not far from the city of Pictou, a few hours were spent looking over the farm of Mr. C. R. B. Bryan at Durham. This gentleman has succeeded in establishing a very promising orchard in a section of country not considered particularly well adapted for fruitgrowing. This orchard, however, was very thrifty and was carrying a heavy crop of fruit. An interesting feature here is the water supply that has been developed from a spring by means of a small hydraulic ram, which secures for the home and buildings of this place a constant supply of pure running water at a comparatively small outlay. There are many locations throughout the country where similar methods might be put into effect, adding greatly to the convenience and comfort of the farm home.

A day was spent in Truro and the vicinity looking over the grounds of the Provincial Agricultural College and some of the orchards in the immediate neighbourhood in company with Professor Shaw, Horticulturist for the College.

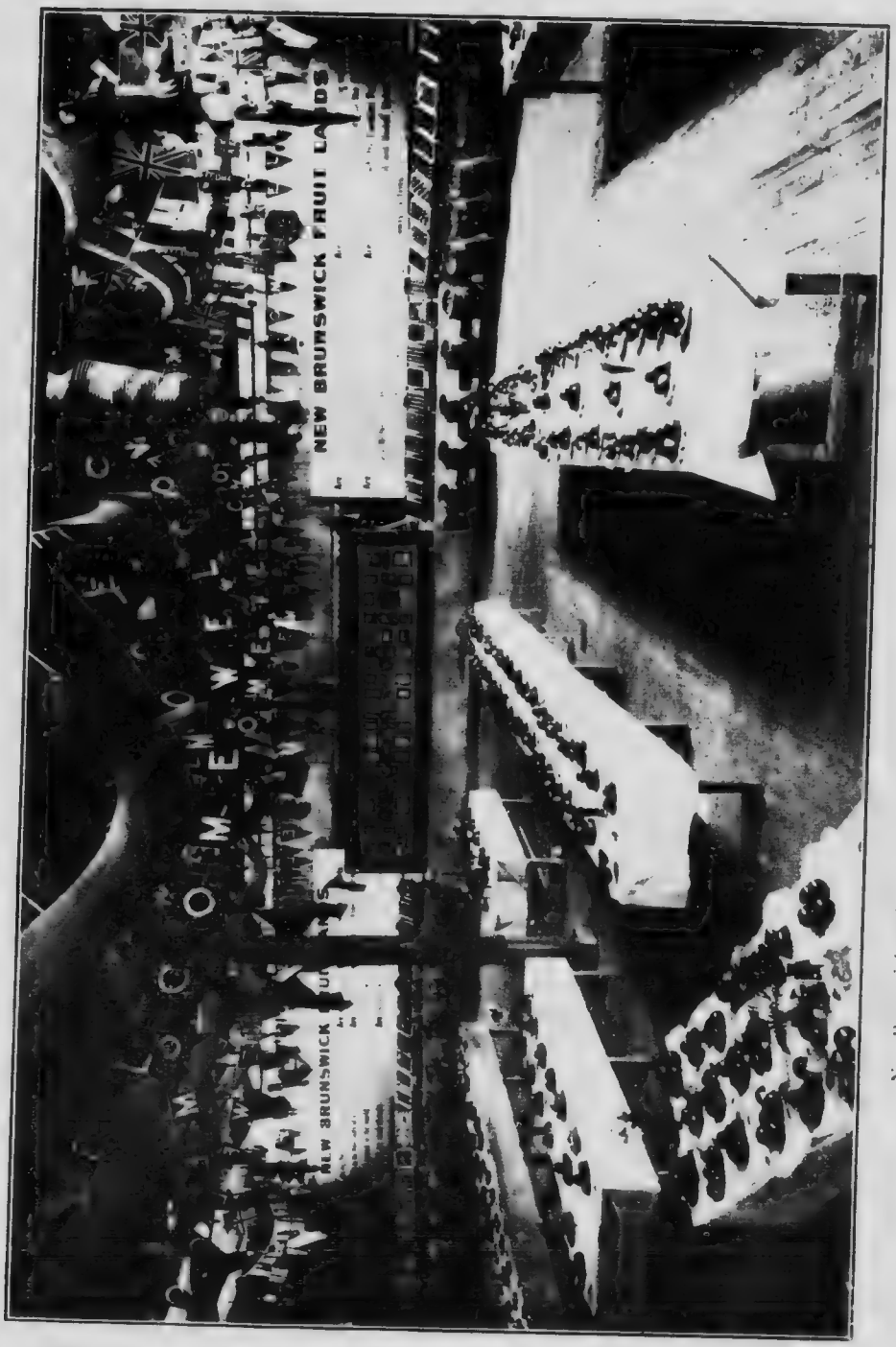
Shelter Belts Desirable.

Climatic conditions here would indicate the necessity for shelter belts and protection from the severity of the winters, together with the careful employment of cover crops, in order to ensure success with even the more hardy varieties of apples. The majority of the orchards here were, like others that have been mentioned, laid down to sod, mowed annually and the crop of hay removed, with the usual result. Professor Shaw expressed the view that it was more than likely that the average man engaged in mixed farming, and venturing upon the planting of a small portion of his farm in fruit trees, would not give that portion the needed attention, owing to conflicting interests, and consequently in many cases the venture would not prove satisfactory. It was his opinion that the orchardist should be a specialist and that he must of necessity give first attention to his trees if he would be successful.

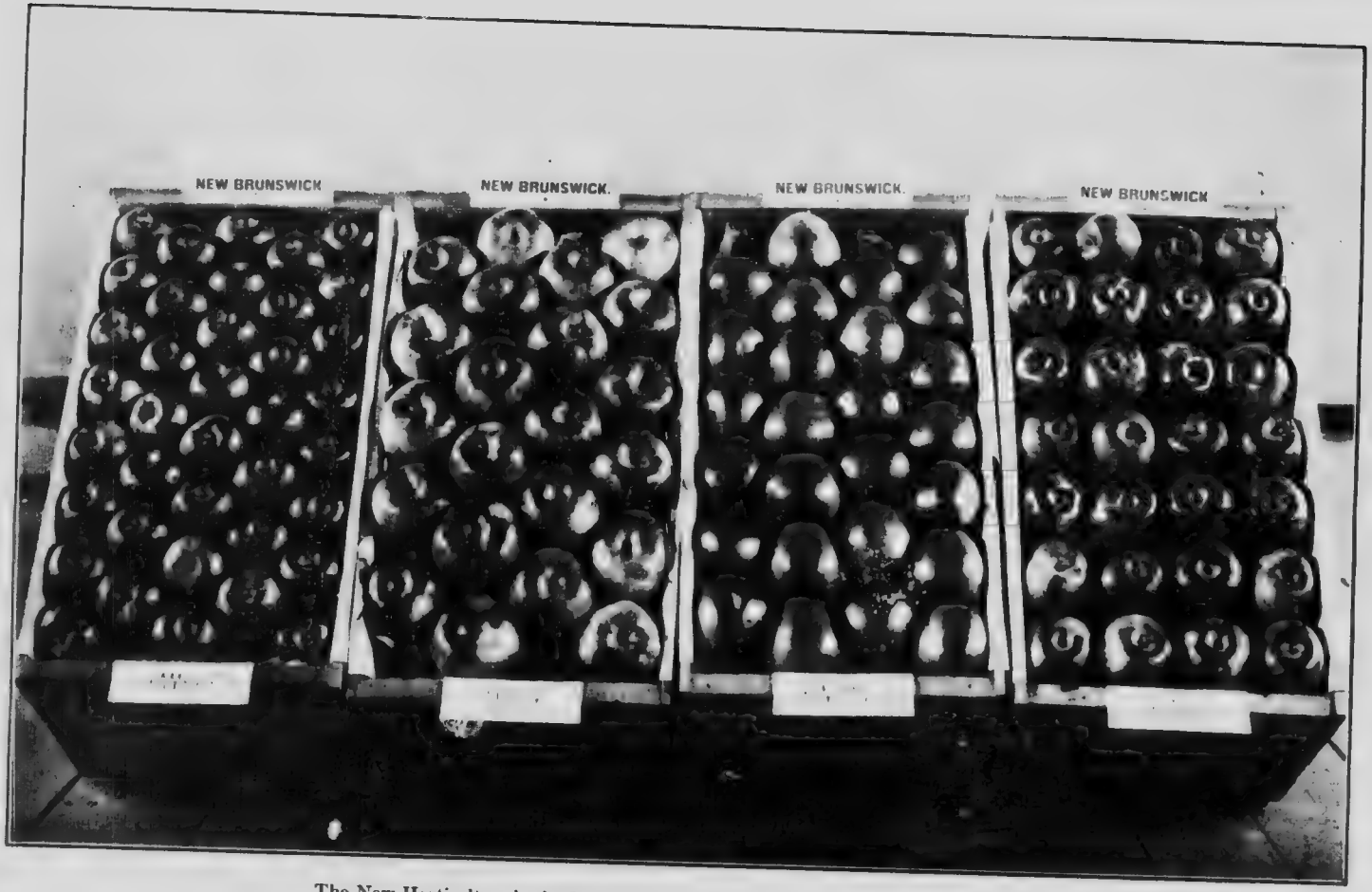
Windsor the Gateway to the Annapolis Valley.

A short run from Truro brought us to Windsor. This town may properly be called the gateway to the famous fruit section of Nova Scotia familiarly known as the Annapolis Valley. Here we obtained our first view of fruitgrowing on an extensive scale in the Maritime Provinces. It is evident from the large size of the trees and the thrifty appearance of the orchards that here they have found their natural home.

A drive through the country surrounding Windsor was particularly interesting. Orchards lined the roadside on every hand, heavily loaded with an abundant crop of fruit, the favourite varieties being the Northern Spy and King of Tompkins.



New Brunswick apples have magnificent colour and her fruit lands are extensive, and cheap.



The New Horticulture in the Province of New Brunswick. Winter fruit for Export.

A thrifty and promising orchard in Prince Edward Island.

Nova Scotia's hillsides and valleys produce splendid crops of fruit.

The Gaspereaux Valley in Nova Scotia beacons to the hurrying thousands of incoming settlers to tarry in the midst of peace and plenty.

Apple Growing Chief Industry.

After a short interview with Dr. Black, M.P. for the county and Mr. G. N. Goudge, one of the pioneers of the district, both enthusiastic horticulturists, we left for the pretty town of Wolfville in Kings County, whence several trips were projected. Here we met Mr. Peter Innes of Coldbrook, R. W. Starr and J. W. Bigelow of Wolfville, veteran fruitgrowers of Nova Scotia. These gentlemen have seen, during the course of years, the fruit interests of this Valley develop from small and insignificant proportions, until at the present time the production of apples of standard sorts has become the chief industry. They may look back with satisfaction upon having assisted in laying the foundations of an enterprise which has made Nova Scotia, and particularly this section, known far and wide.

Starr's Point.

During the next two or three days, in company with Mr. Chas. Starr, Professor Cumming and Mr. G. H. Vroom, the latter of whom acted as our guide throughout Nova Scotia, we drove or motored for many miles through what seemed almost one continuous orchard. In the course of this trip we visited the celebrated Starr's Point, a section where some of the first commercial orchards of the Valley were established. Many of these orchards, planted more than half a century ago, are remarkably thrifty and vigorous. Immense trees with a spread of forty feet and more show the very great adaptability of this district for successful orchard culture. Special mention might be made of the orchards of Messrs. C. R. H. Starr and Son, and Mr. A. C. Starr, which are being handled according to the best practice and which show the results of care and generous treatment.

In this vicinity at Port Williams is found one of the largest barrel factories in the Province, which at the time of our visit was turning out about 1,200 apple barrels per day.

Only 10% of Land under Fruit.

Adjoining the town of Wolfville are the extensive orchards of Messrs. J. W. Bigelow and Son and the Wolfville Orchard Company. Mr. Bigelow is of the opinion that not more than ten per cent of the land in the three counties of Hants, Kings and Annapolis is under orchard and about 25 per cent under the plough, leaving 75 per cent of probably the best orchard land in the Province still untouched. He also gives in the following order a list of what he considers the best commercial apples for this section,—Baldwin, King of Tompkins, Gravenstein and Ribston Pippin, to which he would also add Bishop Pippin, Rhode Island Greening, Blenheim Orange and Nonpareil as worthy of consideration. Northern Spy, Fameuse and McIntosh Red have not given the best results on account of their liability to spot or scab, but this objection can no doubt be removed by careful spraying at the proper season. In this vicinity plums are grown to a considerable extent, Mr. A. H. Johnson growing large quantities of this fruit.

Intensive Planting.

A remarkable and curious orchard is to be found in the vicinity of Grand Pré, the property of Judge Weatherby. Mr. Weatherby's attention having been called to the wonderful productiveness of a celebrated Gravenstein tree on the the farm of Mr. J. A. Kinsman at Lakeville which carries the record for yield in the Province and which consists of three large trunks proceeding from the

one root, conceived the idea that three trees planted together would be likely to produce much greater crops than one tree in a place. Consequently a considerable area was set out on this plan and to-day the orchard is probably unique in this respect. Whether this gentleman's expectations will ever be realized is a matter of considerable doubt.

The Gaspereaux.

The Gaspereaux Valley for many miles presents an ever-changing panorama of flourishing orchards and fruitful fields. Here the mind of the traveller naturally turns back to the early days of this section made famous by Longfellow's sad and tragic poem of "Evangeline."

Hillcrest Orchards.

Leaving the beautiful and historic valley behind, the districts around Kentville and Berwick were next visited in turn. Mention must be made of the important fruitgrowing proposition know as the Hillcrest orchards, managed by Mr. Ralph Eaton. These orchards are widely known as an example of intensive orcharding on a large scale, apples being the chief feature, but the ground is also occupied between the rows with large numbers of cherries and plums as fillers. Mr. Eaton's ideas of close planting were formed after inspecting the late Mr. Sharp's orchards at Woodstock, and the plan that he is endeavouring to develop is to utilize the land as profitably as possible in the early stages of the orchard, and as soon as the trees begin to crowd make arrangements to transplant a certain portion of them to fresh areas. By this means he hopes to secure the maximum quantity of fruit with the minimum expenditure of effort and expense. The practical working out of the problem here presented is attracting considerable attention not only in the immediate neighbourhood but wherever this undertaking has been brought to the notice of the horticultural public.

500 Trees to the Acre.

Probably the portion of the Hillcrest orchards of greatest interest to the average fruitgrower would be the ten acre plot of Wagener apple trees. There are five thousand trees in this block which are now about eight years of age. At present the trees are set eight feet three inches apart, including three trees each way between the permanent trees, making the latter 33 feet apart. Next year Mr. Eaton hopes he will be able to produce five thousand boxes of apples from this block, and before he is forced to transplant the fillers to establish the record of obtaining five hundred barrels per acre. He is an enthusiastic man, and it is to be hoped that his undertaking may equal his most sanguine expectations.

Ray Clark's Venture.

At Waterville is an example of what may be accomplished through energy and determination. The story of Mr. Ray Clark's success in orcharding is a rather interesting one. Four years ago he bought this farm for $15,000, incurring an obligation of $13,000 in the purchase, older heads predicting breakers ahead in connection with the investment. That same year, and for the three following years, he has sold his crop for about $3,000 annually, and as the orchard bore a record crop during 1911, the remaining obligations will no doubt be cleared off from its proceeds, and the entire farm paid for in four years by the returns from the orchard alone.

Mr. Pineo's King of Tompkins.

Mr. W. W. Pineo's extensive orchards at Waterville are located on a tract of land which, in its original state, would not be considered very fertile or adapted for general farming, but which has, under intelligent treatment, proved exceptionally valuable for orchard purposes, as is clearly in evidence from the fine orchards established on this property. Mr. Pineo has now over 100 acres in trees, ranging from one to twenty-five years old. One block of King of Tompkins trees of one and one half acres, planted in 1889, produced in 1909 three hundred barrels of apples which netted $981.00. This same block of 75 trees produced in 1905, 175 barrels, in 1906, 225 barrels and in 1907, 260 barrels.

The unimproved land in this vicinity is valued at from ten to twenty dollars per acre. Much of it in its improved state is producing from one to four hundred dollars per acre, clearly demonstrating the profitable nature of orchard culture in this district under proper methods.

Berwick.

The town of Berwick is probably the centre or hub of the district in which it is situated, owing to the fact that some of the larger packing houses and orchard enterprises are established here. Mr. S. B. Chute, one of the leading fruitgrowers, is carrying on what might be considered a very practical system of intensive orchard culture, the trees being set 16½ feet apart each way, receiving annual summer pruning, and being kept well headed in. These trees have borne good crops for a number of years, and promised a very heavy crop the past season. The system adopted in this orchard is worthy of consideration as being a very satisfactory method when close planting is deemed advisable.

A peculiar feature in connection with the soil in this district is the fact that for general agricultural purposes it would not be considered extremely valuable or productive, but for fruit of various kinds, under proper care and fertilization, it seems to be particularly well adapted.

Shipping Stations.

There are about forty shipping stations in the Valley and according to Mr. Chute, Berwick will probably ship one hundred and fifty thousand barrels, equal to one tenth of the entire output, during the season of 1911-12. This point may be said to be the headquarters of the various co-operative associations that have been formed, and from which very great results are anticipated. The orchards of Messrs. S. C. Parker, W. H. Woodworth and A. S. Banks are all located in this vicinity.

Apple Warehouses.

Reference might be made to the methods adopted by the Nova Scotia fruitgrowers for handling their crop. Large apple warehouses have been erected at the shipping stations previously referred to, well built, frost proof, and of large capacity. Five of these houses are located at Berwick alone. The fruit is put in the barrels in the orchards as fast as it is picked, and hauled to the warehouses, where it is repacked and placed in the cars for transportation to whatever destination may be desired. This method seems to be working out very satisfactorily, and as the growers are organizing numerous co-operative associations, a uniform pack from these warehouses ought not to be difficult to secure. A desirable addition to present facilities, however, would be more numerous evaporators or canning factories to make use of the percentage of fruit not suitable for shipping purposes.

Reaching Middleton, the orchard of Mr. Hardy Roop is deserving of mention from the attention which has evidently been given it by those in charge of this property. Some 240 trees are in the block, which have been carefully pruned and cultivated and are of a remarkably uniform character, bearing at the time of our visit a magnificent crop of fruit.

Mr. W. B. Ross also has a very fine property here and is undertaking the planting of extensive orchards, which are making rapid progress. Mr. Ross considers the opportunities for successful orcharding in Nova Scotia as almost unlimited.

Rev. Mr. Raymond's Problem.

At a gathering of fruitgrowers at Lawrencetown, the Rev. Mr. Raymond of Annapolis Royal delivered an address in which he propounded the proposition whether it was possible for a man to borrow the money necessary for the purchasing of land, trees and even the labour necessary to care for the property, and still be able to make an ultimate profit from the orchard. Mr. Raymond stated that he was endeavouring to solve it, and is keeping an accurate account both as to expenditure and returns from his own orchard, which is as yet comparatively young. So far he is very enthusiastic over his venture, and believes he will be able to demonstrate the above proposition in a practical manner. It would not be wise for the average man to undertake fruitgrowing on that basis, for while under favourable circumstances it may be quite possible to 'make good', yet it would be much safer to provide some little capital before embarking on an enterprise of this kind.

The Annapolis Valley can properly be considered perhaps the largest single area in Canada devoted almost entirely to the production of the apple, and while, as already intimated, there are immense areas of excellent fruit land in this district awaiting development, there is no section in Canada where so many fine orchards can be found within a limited area.

Cherry Growing at Bear River.

Leaving Middleton, we proceeded by way of Bridgetown and Annapolis Royal to the Bear River district. At Bridgetown are located the orchards of R. J. Messenger and F. H. Johnson, the latter being one of the most practical orchardists in that section of the country. The Bear River section is noted as being particularly favourable for the production of cherries, and here we observed some of the largest cherry trees we have ever seen. Some of them had a spread of over forty feet, and good authorities had estimated that in a favourable season occasional trees would bear a crop of 50 bushels of fruit. This section is also well adapted for the production of small fruits and of apples. In the Model orchard near the town of Bear River, we saw the first peaches in the Eastern provinces, a number of young trees of the Alexander and Triumph varieties bearing a moderate crop of fruit. Mr. Rice, the owner of this orchard, has also a few varieties of plums under cultivation, such as Climax, Abundance, Burbank, Lombard, Yellow Egg and Satsuma. These trees, however, were badly affected with black knot, and it is somewhat uncertain as to whether they will be commercially successful.

A visit was paid to the orchards and offices of Messrs. W. W. and W. G. Clarke at Bear River. These gentlemen are enthusiastic and optimistic as to the future of apple growing in this section, and are planting out largely, taking the best of care of their orchards. They also handle a large portion of the output from here, both for the city of St. John and the English market. Mr. W. G. Clarke expressed the opinion that the shipping facilities were not sufficient for the coming crop and feared a considerable congestion on this account.

Reaching Digby and following the coast line to Yarmouth, and around the south shore as far as Bridgewater in the County of Lunenburg, an extensive territory was traversed, of which the possibilities from a fruitgrowing standpoint are as yet undeveloped and unknown, fishing and lumbering seeming to be the chief occupations of the people.

Demonstration Orchard at Bridgewater.

In the vicinity of the pretty town of Bridgewater some considerable efforts have been made to grow fruit, and here was situated another of the model orchards of the Province, on the property of Mr. A. T. Hebb. This orchard is being well taken care of and Mr. Hebb is endeavouring to handle it in such a way as to demonstrate the capabilities of this section to produce excellent apples of the standard kinds.

Cranberry Culture.

The cranberry bog of Mr. W. A. Hebb, about ten acres in extent, has been reclaimed within the last few years from what was a jungle and swamp until at the present time Mr. Hebb values it at $1,000 per acre. Cranberries are also grown to a considerable extent in the Annapolis Valley, in the neighbourhood of Kingston, Aylesford and Berwick, some three or four thousand barrels of this fruit being produced last season.

Halifax.

Leaving Bridgewater our next stop was at the historic city of Halifax. Short interviews were had with a number of the wholesale dealers who all agreed in the statement that the fruit shipped from Ontario frequently arrived in bad condition, and was not very saleable. The same criticism would apply to a great deal of the fruit seen by the writer, some of it from the American side and some from Ontario.

Mr. Colwell, a broker who handles large quantities of fruit in the season, stated that there was a fair market in Halifax and surrounding towns for such fruits from Ontario as could not be successfully produced in Nova Scotia, providing greater care was taken in the handling and packing for that market.

Improved Ocean Transportation Necessary.

During the early part of the season the Furness Withy line of steamers, leaving St. John and Halifax for the Old Country, provides about the only means that Nova Scotians have at present for the trans-shipment of their early apples to England. As the dates of sailing of these steamers are somewhat uncertain and the time required in transit is considerably longer than the regular mail steamers, a good deal of loss and disappointment has been experienced in the past by those availing themselves of this method of transportation. Conditions were so critical last season, in view of the prospective he[illegible], that at the time of our visit the co-operative associations were seriously con[illegible]ing the proposition of forwarding a portion of their early apples to the English market by way of Montreal in order to take advantage of the larger and swifter boats.

Nappan.

On our way westward a visit was made to the Experimental Farm at Nappan, where extensive plantings of a large variety of apples, plums and other fruits

have been made with a view to testing their adaptability for this section of the country. A great deal of valuable information has been obtained and results of the work done here will be found embodied in the regular reports of the Dominion Experimental Farms issued from year to year.

Care of Orchards Generally Good.

Before leaving the Province of Nova Scotia it might be said that the general conditions under which orcharding is being carried on are quite in accordance with good practice, and will compare favourably with other portions of Canada or the United States. Many of the orchardists have become specialists, and have devoted a good deal of thought and energy to establishing valuable orchards which are a credit to themselves and to the Province.

More Thorough Spraying Necessary.

However, partly on account of the immense size of the trees, and partly on account of lack of suitable appliances, spraying has not been carried on with the energy and thoroughness necessary to produce the best results. Careful and thorough spraying, followed up by a systematic thinning of the fruit in seasons like the one just passed, will work wonders in equalizing and regulating the crop of fruit and enabling Nova Scotia growers to be on the market every year with a first class article.

The season of 1911 has proved a record one for the apple growers and shippers of this Province, taxing their ability to the utmost to harvest and handle the immense crop produced. Early in the year a crop of one million barrels was predicted, but as the season advanced, this estimate was frequently revised. There is no doubt but that the shipments will equal, if they do not exceed, one and one half million barrels of apples.

For the first time Nova Scotia invaded the Northwest markets and over one hundred thousand barrels were successfully distributed in Manitoba, Saskatchewan and Alberta, a few even finding their way into British Columbia. These shipments in most instances gave good satisfaction, although some complaints were made in regard to the size of the fruit. Systematic thinning in the early part of the season, would no doubt have paid well and have worked wonders in increasing the size of the apples, at the same time producing an equal volume of a more satisfactory character with considerably less strain upon the trees.

Owing to the great advantages which this Province possesses on account of its comparative nearness to the English markets, with frequent sailings of the better class of steamers during the winter season, the production of apples should continue to prove very attractive, and will no doubt greatly increase from year to year.

Prof. Shaw recommends for Northern Nova Scotia, the following list of apples in the order of ripening.—Astrachan, Transparent, Duchess, Wealthy, Dudley, Alexander, Wolf River, McIntosh Red, Baxter and Milwaukee.

A commercial orchard has been planted at the Experimental Farm at Nappan and contains the following varieties.—Astrachan, Duchess, Wealthy, Wolf River, McIntosh Red, Fameuse, Peewaukee, Baxter, Blue Pearmaine, Golden Russet.

For general cultivation throughout the Annapolis Valley, a wide range of apples succeed. The following are more generally planted and cover the season very well:

Williams Favourite, Gravenstein, Wealthy, King, Wagener (as a filler), Ribson, Blenheim, Baldwin, Northern Spy, Bishop Pippin, Golden Russet, Nonpareil.

QUEBEC.

Before making a trip through the Province of Quebec a day was pleasantly spent at Macdonald College at Ste. Anne de Bellevue, where, in company with Professor W. S. Blair, Horticulturist at the College, an inspection was made of the orchards that have been set out on this fine property. Experiments are here being carried on with apples, pears, plums, cherries, grapes and small fruits, with a view to determining the best methods of employing cover crops and various fertilizers in orchard culture, as well as to further test promising varieties and those of recent introduction. In the course of a few years some very valuable information will be available in regard to the newer fruits which are likely to prove successful in the Province of Quebec. Professor Blair who is a very careful, patient experimenter, has also devoted considerable attention to the establishment of demonstration orchards in various parts of Quebec, with the object of placing before the fruitgrowers in these localities the best methods of orchard practice for their several conditions.

Como.

A short distance from Ste. Annes, on the banks of the Ottawa River, are found the large orchards of Captain R. W. Shepherd, a gentleman who for many years has been interested in the development of fruitgrowing in the Province of Quebec. He has about forty acres under orchard and has tried nearly every variety that gives promise of being successful under his conditions.

He has been very successful in catering to the high class trade of the city of Montreal, and has also for many years been exporting Montreal Fameuse to the Old Country markets. For this purpose he has devised a special apple box, modelled somewhat after the style of the egg case in common use, in which each fruit is placed in a separate compartment. This method of shipment has proved very satisfactory in connection with Mr. Shepherd's own business, but being of a somewhat special character, has not come into general use.

Underdraining Valuable.

Fruit trees thrive much better on the higher, well drained land than they do on soil that is in any way of a damp character. Observation seems to confirm the opinion that either severe drouth or undue dampness is detrimental to the ability of a tree to withstand extremes of temperature and shows conclusively that underdraining would be very valuable here as elsewhere in protecting the trees from winter injury. In this vicinity the apple maggot has obtained a foothold and it will only be by heroic measures and united action by the fruitgrowers in the locality that this pest can be eradicated.

La Trappe.

The extensive orchards of the Monastery at La Trappe, on the opposite side of the river from Como, were looked over, through the courtesy of Father Leonard. On this property there are over one hundred acres under orchard, the principal varieties being Astrachan, Duchess, Wagener, Wealthy, Alexander, McIntosh Red, Wolf River and Marshall. In one section of their larger orchard there was a tremendous crop of Wealthies, which were very clean and of excellent size and colour. The Marshall is an early dessert apple, a very good grower, hardy and of excellent quality. The McIntosh Red apples seen in this orchard were perhaps the finest of this variety observed anywhere throughout our trip. A serious mistake has been made on this property in planting too many varieties, some of them of doubtful commercial value. The orchards are being carefully

looked after and every attention is being paid to the production of fine crops of fruit, some 3,500 barrels being the product during the past season. Very little winter injury was observed and considerable extension is contemplated.

A commodious and well planned ice-cold storage has been erected, where several carloads of fruit may be stored to await suitable markets. Considerable young stock is being grown in the nurseries and will be available both for their own use and for distribution throughout the Province.

Demonstration Orchard at St. Joseph du Lac.

Leaving La Trappe, we drove through St. Joseph du Lac, passing several large orchards en route, the principal one being that of the McColl brothers. A portion of this orchard is being used by the Provincial Government as a demonstration orchard and excellent results were to be seen from the methods of treatment adopted. The trees in this orchard are 27 feet apart each way, but Mr. McColl considers them too close, and stated that if he were planting again he would set the trees at least forty feet apart. For this section he favours the Fameuse, McIntosh Red, Duchess, Wealthy and Alexander, of which the Fameuse is the most profitable. He considers this district to be better adapted for fruitgrowing than for any other purpose, but on the lower land he would not recommend planting fruit trees.

Lime Sulphur Best Spray.

A portion of the demonstration orchard was sprayed with Bordeaux and part with Lime and Sulphur, and the fruit on the trees which were sprayed with the latter mixture was very much smoother and brighter in appearance in every way.

Many orchards in this district, owing to continued neglect, show marked signs of deterioration.

Hemmingford and Covey Hill.

The town of Hemmingford was reached on August 25. An examination of some of the orchards in this vicinity showed the presence of the apple maggot to a considerable extent. Later in the day a visit was paid to Covey Hill, where there are a number of orchards which are not generally in the best condition, owing to the difficulty of cultivation and securing the necessary fertilizers. A remarkable exception to this, however, is found in the orchard of Mr. R. W. Waddell, part of which is being used for demonstration purposes. This orchard will compare favourably with any we have seen in the Province. Not only are the trees in the demonstration section looking healthy but the whole orchard is being so well taken care of that it presents a remarkably thrifty appearance.

Chateauguay Section.

The following day the section in the vicinity of Chateauguay was reached, and, in company with Mr. Peter Reid, Secretary of the Quebec Pomological Society, a trip was made to the numerous and extensive orchards surrounding the town.

The early settlers, becoming convinced of the suitability of this section for fruit, began almost at once to plant trees, and planting has been going on with more or less regularity ever since. Fameuse, Wealthy and McIntosh are extensively planted and find a ready sale in the Montreal market.

Fameuse Do Well.

The Jack brothers, in addition to a 15 acre orchard of Fameuse which has been proving very profitable, are extending their plantings as rapidly as possible. The majority of the orchards are kept under sod, and are frequently mulched with barnyard manure, a system which seems very satisfactory where the winters are severe. This district should be a splendid one for the production of small fruits owing to the proximity of an excellent market in the city of Montreal, and the number of good sized manufacturing towns within easy reach.

The Scarlet Pippin, or Brockville Beauty, a seedling of the Fameuse and somewhat similar to it, is found in considerable numbers in some of these orchards. It is a heavy cropper and a fine dessert apple. From this place some ten to twelve thousand barrels of apples are sent every year to the Montreal market, a very great proportion of these being of the fine dessert varieties.

City Growth Crowding the Orchards.

Several hours were spent with Mr. Robert Brodie on his home farm near the city of Montreal. At one time Mr. Brodie had very extensive orchards, and was actively engaged in the production of fruit. A very rapid extension of the city limits, however, has overtaken Mr. Brodie's property and these fine orchards are now being cut up into city lots.

His favourite apple is the McIntosh Red and he stated that if he was planting out one thousand trees to-day nine hundred of them would be of this variety. He is of the opinion that there is a great deal of valuable land in Quebec where orcharding could be extended and carried on successfully. Cherries, pears and plums are only moderately profitable. Flemish Beauty, however, does very well, and grows quite clean and free from scab if properly looked after.

Southeastern Quebec.

Reaching Quebec [illegible] August 28, we were met by Mr. J. C. Chapais, Assistant Dairy Com[illegible], who accompanied us for the next few days through the different sec[illegible] east of Quebec on the south shore of the St. Lawrence, where fruits of various kinds have been produced for many years.

Fruit Trees Live Long.

There are a number of small orchards scattered throughout this district, the majority of which are not receiving the care and attention which should be given. Trees planted 80 years ago are to be found in some of the orchards and these would go to prove that hardy fruits might be planted with confidence, and if given good attention should prove profitable. In some of the villages are to be found numbers of plum trees planted in the gardens, chiefly of the Reine Claude and Damson varieties, and these frequently produce excellent crops.

Auguste Dupuis' Nursery.

At Village des Aulnaies are the orchard and nursery of Mr. Auguste Dupuis, a gentleman who has been prominently identified with fruit growing in the Province of Quebec for many years, and who was at one time President of the Council of Agriculture for the Province. He has a very extensive nursery in which he is growing, in addition to a great variety of ornamentals, all the fruits that are hardy in the Province.

Inverness.

Returning, a very pleasant day was spent in connection with the summer meeting of the Quebec Pomological and Fruitgrowing Society at Inverness, a point where fruitgrowing is as yet in its infancy, but where considerable interest is being aroused, largely through the influence of the Rev. Mr. Dickson, President of the Society for 1911. Increased plantings are likely to take place as a result of the enthusiasm instilled into the people by the meeting of the Society on this occasion. Among the fruit exhibits on display were some of the finest Yellow Transparent apples that it has been our privilege to see in any section.

Henri Noiseaux's fine Sod Orchard.

On our way to Montreal we spent a short time at St. Hilaire, Rougemont and Abbotsford, districts noted for the large quantities of dessert apples shipped to the Montreal market, and here we found the Fameuse, McIntosh Red, Alexander and Wealthy at their best. An hour was spent in the orchard of Mr. Henri Noiseaux at St. Hilaire. This gentleman has an extremely fine orchard, and is to be congratulated on the manner in which it is being handled under somewhat difficult conditions. He has some eighty acres under trees, the land for the most part being very stony, impossible to cultivate and not suitable for general agriculture. In spite of obstacles the trees have been set out with great regularity, and heavy fertilizing has been practiced by mulching each tree with large quantities of barnyard manure.

Clean Culture.

A feature that is noticeable is the remarkable cleanliness of the orchard. All culls are gathered up at frequent intervals and destroyed, thus making it almost impossible for insects such as the apple maggot to spread. Last year the crop was three thousand barrels and at the time of our visit most of the trees were hanging full with a very fine crop of fruit. Mr. Noiseaux has so far confined himself to the Bordeaux mixture for spraying, with excellent results.

Grows His Trees from Seed.

Here we found Flemish Beauty and Clapps Favourite pears both doing very well and bearing excellent crops of very clean fruit. The principal varieties of apples were Fameuse, Scarlet Pippin, Northwestern Greening, St. Lawrence, Wealthy, McIntosh Red and Alexander. Mr. Noiseaux grows all his trees from seed, and does his own grafting with scions from selected bearing trees. Consequently he is absolutely sure of the varieties that he is planting out.

In close proximity to this orchard is that of Mr. Martin, part of which is being used as a demonstration orchard by the Quebec Government. In this orchard we found comparative results of Bordeaux and Lime Sulphur mixtures, showing the latter to be much superior for general use.

In the vicinity of the village of Rougemont there are several very large orchards, one of which, under the control of Mr. M. P. Pike, deserves special notice. This orchard is delightfully situated, is about 35 acres in extent, and is being operated with careful attention to details in order to secure the best results.

The soil at the base of the mountains in this district is very suitable for fruitgrowing, and considerable areas are available at moderate cost. Montreal

with its great market is easily reached, and if co-operation and increased planting were encouraged, a very extensive trade would no doubt result.

Late Charles Gibb.

At Abbotsford some historic orchards are to be found. The first seedling orchards came into bearing here in 1812 just 100 years ago and the first grafted trees were planted in 1810. Here is to be found Gibbland Farm, for many years the home of the late Charles Gibb, who was prominent in connection with the early days of Horticulture in Quebec. This farm at one time contained the best collection of hardy fruit trees and ornamental shrubs in Canada. Mr. Gibb made two trips to Russia in company with Prof. J. L. Budd of Iowa to secure and introduce into Canada hardy trees and fruit which might prove useful and valuable in Northern latitudes. His various publications on Horticultural subjects are standard works of recognized value. While the older orchards show the effects of winter injury and are declining, a number of orchards have been planted within recent years, notably by such men as Messrs. John and Chas. Fisk, Chas. Byers and others, who are active in Horticulture at the present time in this section.

A number of very fine pear orchards have been seriously injured in this vicinity, and in some cases almost destroyed, by pear blight, which has obtained a serious foothold. So far it has been found impossible to eradicate this disease, although the usual custom of cutting out the affected branches has been followed up with some care.

A Government demonstration orchard has been established here on the farm of Mr. Marshall, and much interest is being taken in the results obtained

The Fameuse.

This section of the Province of Quebec has been noted for many years for the production of large quantities of dessert apples, which reach perfection over a considerable area. This would apply more particularly to the Fameuse, a very valuable apple of Canadian origin which has found a congenial home in many parts of the Province.

Montreal or Quebec Fameuse have become very popular on account of the beautiful appearance and high quality of the fruit. Many thousands of barrels have been sold in the American markets and exported to foreign lands.

Orchards are Declining.

It is greatly to be regretted, however, that there is grave danger of this distinction being lost unless the horticulturists of the Province awake to the gravity of the situation and seek to maintain their prestige. Many of the fine Fameuse orchards, if not already dead, are rapidly passing away and no concerted effort is being made to renew them. Many causes, some of them uncontrollable, but others arising from carelessness and neglect, have contributed to this condition. Public attention should be called to the fact that the production of apples is not increasing in the Province of Quebec to the extent it should, but on the other hand it is feared that the next few years will see a serious decrease unless steps are taken at once to remedy this situation. If hundreds of acres of new orchards of the fine dessert varieties were annually planted in this Province, a ready market would be found at high prices for all the fruit that could possibly be produced, the value of the farms upon which the orchards were located would be vastly increased, and a supply of fancy fruit would be forthcoming which is at the present time greatly needed.

ONTARIO.

The Province of Ontario is without doubt the most important one in the Dominion from a horticultural standpoint, both as regards the extent of territory involved, the great variety of fruits which reach perfection, and the volume of the trade which has been successfully developed throughout Canada and in foreign markets.

Freedom from Frost.

Owing to the proximity of the several large lakes surrounding the southern pa ' of the Province, it has, over a large territory, a much milder and more equable climate than many sections of the United States considerably farther south. Late spring frosts and severe winter temperatures are quite unusual here, and consequently many of the tender varieties of fruits may be produced with great regularity and success.

The eastern part of the Province, comprising the counties along the St. Lawrence river, are more especially suited to the successful production of the varieties of apples which succeed in south-western Quebec, such as the Fameuse, Wealthy, McIntosh Red, Alexander, Wolf River and similar hardy kinds. While plums, pears and cherries have been planted, this section is suitable only for varieties of these fruits which have been proven to be capable of withstanding severe winter temperatures. Gooseberries, currants and strawberries do well, while raspberries require protection for most varieties.

St. Lawrence Experiment Station.

A day was pleasantly spent at Maitland with Mr. Harold Jones, one of the most prominent fruit growers in this section, who has charge of the St. Lawrence Fruit Station, one of the thirteen experimental stations established by the Ontario Fruitgrowers' Association in various parts of the Province, at one time under the direction of the late Hon. John Dryden, for many years Minister of Agriculture for Ontario. Mr. Jones has had occasion to test many varieties of fruits in the course of his work and has furnished a great deal of valuable information from time to time through the reports which he has made and which have been published by the Department. This work has been largely a public-spirited effort on his part, from the fact that he has devoted one of the best fields on his farm for this purpose, and instead of having it fully occupied with a splendid orchard of standard apples, there have been planted at various times, for experimental purposes, many kinds which, proving unsuitable and unable to stand the conditions of this locality, have been a source of loss and disappointment. In the main orchard on this farm there are some splendid specimens of the Fameuse, Scarlet Pippin and Wealthy, which for many years have produced large and profitable crops. Mr. Jones considers these varieties and the McIntosh Red, of which he has a fine young orchard, to be the best commercial proposition for eastern Ontario, and contemplates planting largely of these kinds.

McIntosh Red.

A very considerable area extending eastward along the St. Lawrence and northward to the city of Ottawa, is also highly suitable for the production of these and similar hardy fruits. In the county of Dundas at Dundela, formerly known as McIntosh Corners, is to be found the original home of the McIntosh

Red, an apple which has become deservedly popular and is being widely planted on account of its remarkable qualities. The history of this Canadian apple is quite interesting and is as follows: About 1796 a clump of young seedling apple trees was discovered in a forest clearing, and carefully planted out by the late John McIntosh, who came to Canada with the U. E. Loyalists. As time went on these gradually succumbed until only one was left. This tree proved so hardy and the fruit was of such high colour and delicious quality that steps were taken to propagate it, and about 1830 it was given the name of McIntosh Red. The original tree continued to thrive and produce fruit until it received serious injury from a fire which destroyed the adjacent homestead of Mr. McIntosh in 1893. This tree struggled on in a more or less crippled condition until it finally died in 1908. The preservation of this great apple to the fruit industry ranks as an exceedingly important event in the early horticultural history of Canada.

At the Central Experimental Farm at Ottawa many interesting experiments and investigations are being carried on by Mr. W. T. Macoun, Dominion Horticulturist, with a view to the propagating, testing and introduction of new varieties of fruits which might prove superior to those already in general use. Considerable progress has been made, and several very promising hybrids of the apple are being propagated for extensive testing, in order to ascertain their suitability for various parts of the country.

Bay of Quinte District.

Proceeding westward we reach the counties along the north shore of Lake Ontario, between Kingston and Toronto. Here are to be found the largest and most important orchards in the Province, of the standard winter varieties of apples. For many years the counties of Hastings, Prince Edward, Northumberland, Durham, Ontario and York, which contain nearly 70,000 acres of orchard, have supplied a very large portion of the fruit which has made Canadian apples well and favourably known in the markets of the world.

The development of the fruit industry in this district has reached large proportions, but cannot be properly understood without a reference to the geology of the section, the people who settled the country, and the peculiarities of its climate. Prince Edward and the adjacent counties were among the earliest settled portions of Ontario. The United Empire Loyalists found this not only a convenient refuge but a most desirable portion of the Continent for other considerations. Many of the early settlers came from Pennsylvania and belonged to the Society of Friends. They brought with them not only a large experience in fruitgrowing but those admirable qualities of character that have made these people remarkable. Almost as soon as they reached their new home orchard planting began. Prince Edward County has some examples of old trees that approach, if they do not exceed, the century mark in age.

Iroquois Basin.

Geologically the best fruit districts are embraced in what is known as the Iroquois Basin, a formation of the glacial period. The border of this Basin is well marked by the high ridge extending from Scarborough along the northern shore of Lake Ontario, and for the most part only a few miles distant from it. The whole of Prince Edward County is embraced in this Basin. As may be supposed from its origin, the land is considerably diversified as to character, in some places quite sandy, while in others the water has left the glacial clays bare. On the top of this ridge and extending north from the edge of it there are many good orchards, but as you go north the better winter varieties can

scarcely be called hardy, and the district shades off into the characteristic of the eastern part of the Province, where only such hardy varieties as the Duchess, Wealthy and McIntosh can be grown with profit.

Prince Edward County is pre-eminently a fruit county. The orchards are large, exceedingly prolific, and there is no limit with regard to hardiness for any of the common varieties. Large quantities of small fruits are grown and many large canning factories have been established to make use of the surplus. In passing it may be noted that, largely as a result of these factories, vegetables of all kinds also form a large part of the products of the county.

The southern portion of the County of Hastings shares with Prince Edward county in large and profitable apple orchards. The single township of Sydney has shipped 30,000 barrels of choice fruit, in one season. One of the earliest co-operative associations in Ontario was formed here in the year 1880, but the original society no longer exists.

Extensive Exporting District.

Northumberland and Durham have developed the commercial side of apple growing within the last few years, perhaps more generally than any other part of Ontario. In common with other counties this district began a few years ago to improve its methods of orchard culture, adopting among other things clean culture. Unfortunately the full significance of this was not at first understood and any of the old orchards that had been allowed to grow in sod for years, showed a very strong tendency to winter root-killing when exposed to these new conditions of clean culture. This was particularly noticeable during the years 1903 and 1904, since which time many of the old orchards have become sadly reduced. However, the younger trees, perhaps as the result of somewhat greater care in the use of cover crops, are showing no such tendency, even under the system of clean culture.

The export business started upon a large scale from these counties, chiefly as the result of the large quantities of apples grown, but also on account of the excellent keeping qualities developed in the apples in this district. The climatic conditions are such that the trees do not start into growth so early as in southern Ontario, and yet the season is sufficiently long for the best varieties to mature. This results in the apple being just ready to pick at the advent of freezing point weather, and when stored in the ordinary warehouse, it goes into a natural cold storage, where it retains its qualities admirably until the warm weather of the following spring.

Apples Keep Well.

This characteristic of climate is also shared with the narrow strip about the west and south shore of the Georgian Bay and with the counties bordering on Lake Huron. The economic value of this can be readily understood when we note that in the State of New York to the south of Lake Ontario the orchardists find it necessary, in order to preserve their winter varieties in the proper condition to use artificial refrigeration. As this system costs on the average about fifty cents a barrel it will be readily seen that the district north of Lake Ontario has a distinct advantage that will undoubtedly tell, should the price of apples approach more nearly than it does now to the cost of production.

Along with the growth of the orchards, and as the result of this development, large storehouses have been erected at the stations of Whitby, Oshawa, Bowmanville, Newcastle, Port Hope, Cobourg, Grafton, Colborne, Brighton, Trenton, Belleville, and in lesser numbers at other convenient points. At

Colborne there are over a dozen warehouses having a capacity of more than 100,000 barrels. Brighton has nearly as many, and Trenton fewer in number but with a larger capacity. There is also situated at Brighton a large storehouse fitted out with artificial refrigeration that will enable the growers in this district to compete in the late spring trade if the markets demand it.

The recent census gives the number of bearing apple trees in Prince Edward county at 177,028, a decrease in number during the last ten years. There has been, however, an increase in the number of non-bearing trees. The significance of this is that some of the older trees have been dying out as the result of the conditions previously referred to. Nevertheless the quantity of apples, as the result of the better culture, is perhaps greater than ever before. Small fruits, more particularly strawberries and raspberries, are an important feature of this section and the trade in these fruits is quite extensive.

Orchards Rapidly Increasing.

Northumberland and Durham are among the few counties showing a decided increase in the recent plantings. Durham is credited with an increase of 100,000 non-bearing trees and Northumberland with 139,000. South Ontario also shares in the general revival of apple growing and shows it more particularly in the increased quantity of fruit produced per acre than in the number of trees planted. Not the least noticeable feature of apple growing in South Ontario is the formation of a large co-operative selling association that has done more perhaps than any other one thing to promote the industry. Its headquarters are at Oshawa, Mr. Elmer Lick being Manager. They have erected large warehouses and have organized the southern portion of the county so that this one association controls a considerable portion of all the fruit grown in this district.

Several important co-operative associations are also in operation at Newcastle, Grafton, Orono and Bowmanville.

This district is also remarkably well adapted for pears. Unfortunately, however, the local markets a number of years ago could not absorb at profitable prices all that was grown and in a few orchards blight became prevalent. These causes combined to discourage the planting of pear trees. Nevertheless there are several very fine orchards in bearing, perhaps one of the finest pear orchards in Ontario being that of Mr. E. C. Beman at Newcastle. All the standard varieties grow here to perfection and there are also some fine pear orchards in the neighbourhood of Oshawa.

Pear Culture should be Encouraged.

It seems a little unfortunate that the culture of pears in this district should be on the decline. Markets were never keener for this delicious fruit and the means of transportation and train service are being rapidly extended and improved. The facilities for shipping to Great Britain are perhaps even better than for shipping to the north-western markets, and in Great Britain there is an unlimited market for the fine varieties that grow here.

Plums and cherries are to be found in all the fruit plantations and a large expansion in those two fruits might profitably be undertaken. At present they do not form a large portion of the output.

Speaking generally of the whole district from Oshawa to Belleville there seems no good reason to doubt that eventually the greater part of the land will be appropriated for winter apple orchards. There is no artificial stimulus in the way of real estate agents and companies to boom the district; nevertheless, planting is perhaps more general here than anywhere else in the Province.

Early Pioneers.

No description of the district would be complete without a reference to the work of those pioneers in the industry, Mr. P. C. Dempsey of Trenton and Mr. Thomas Beal of Lindsay. Mr. Dempsey's work as a hybridizer will live in the history of Canadian horticulture. The Dempsey pear and the Walter apple are now recognized as valuable varieties, but perhaps Mr. Dempsey as well as Mr. Beal did greater service in their experimental plantings and in their teaching of better methods in the care of orchards, resulting in an interest which showed itself finally in the quantity of fruit produced in this district.

Burlington District.

West of Toronto to Hamilton, including parts of York, Peel, Halton and Wentworth, we find a district that is unexcelled for small fruits of all kinds, and is also noted for the quality and quantity of its apples, plums and pears. The large cities of Toronto and Hamilton being within easy reach, the residents of this entire district have been led to devote a very large portion of their farms to the culture of fruits and vegetables, and perhaps nowhere in Canada is this industry carried on with greater success. More than 25,000 acres are devoted to this purpose, and on account of the intensive methods practiced, with the use of a very liberal supply of fertilizers, the value of the crop per acre is quite large. The towns of Port Credit, Clarkson, Oakville, Bronte, Burlington and Waterdown are all important shipping stations for the fruit produced here. A trip along the r[illegible] road westward from Toronto leads through an almost continuous succession of strawberry and raspberry fields, interspersed with orchards of the larger fruits and great stretches of vegetable gardens. Daily throughout the season, by train and wagon, large quantities of fruit are being forwarded to the above-mentioned cities and to more distant parts of the country.

A visit was paid to the home [illegible] Mr. A. W. Peart at Burlington. This gentleman was in charge of the Burli[illegible]n Experiment Station for many years, and like Mr. Jones of the St. Lawrence station, has given a great deal of attention and devoted much time to the work of testing and proving the range of fruits likely to succeed under his conditions. His reports have always been conservative, clear and full in regard to the fruits under investigation, and as the conditions here apply over a wide territory, he has been able to perform a service to Ontario in this respect not exceeded by any other station in the Province.

Apples, plums, pears, cherries and grapes, of the larger fruits, with a very wide range of the small fruits, have all been carefully watched and reported upon. Many a prospective planter has started a successful career by availing himself of the sound counsel and authentic information supplied by the reports from this station.

The fruit and vegetable industry throughout this section is extensive and important. A marked appreciation has recently taken place in the value of land suited to the purpose, and considerable activity in real estate is to be noted, which, when not the result of manipulation, is a very fair index of the situation in a given locality.

Many other prominent men are located here, amongst whom might be mentioned Messrs. Geo. E. and W. F. W. Fisher, Messrs. J. C. Smith and Son, Mr. A. C. Biggs, and Mr. Wm. Emory.

It is quite opportune to state, in these days of co-operative movement, that one of the first efforts on the part of fruitgrowers of this Province to join forces in the way of co-operative shipments of fruit, began at Burlington.

About 1885 the shippers in this section, under the direction of Mr. George E. Fisher, began to ship apples to England in car lots. In 1892 box

Young Orchard Macdonald College, Quebec Orchard Strawberries planted and seeded to cover crop Robust one year growth

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orchard in Ontario or Nova Scotia. The modern low-headed trees is now approaching the form of the [illegible] will admit of somewhat closer planting. The crop is more easily harvested and injury to the fruit is less liable to occur

ERRATA.__In the printing of this Report, the titles for this Plate and the one opposite page 48 were accidentally transposed.

A typical apple orchard in Ontario or Nova Scotia. The modern low-headed tree is now superseding this form of tree, as it is easier to prune and spray, and will admit of somewhat closer planting. The crop is more easily harvested and injury to the fruit is less liable to occur.

A Mortgage Lifter. The result of careful scientific methods in orchard culture.

Apples 15 x 30. Intercropped with Potatoes, Rougemont, Quebec.

shipments of fruit were successfully tried with both apples and pears of the firmer and better shipping kinds. A little later the softer fruits such as Bartlett pears, grapes and tomatoes, were exported in an experimental way with some success as far as the pears were concerned. Since that time these co-operative shipments have been continued each year until this district has established a very good connection for its product in the British markets. The principle upon which the shippers have united has been that of mutual good will and intelligent self interest. The experience of the Burlington District is commended to the consideration of other districts which may be embarking on a scheme of co-operative organization of a more pretentious character.

Fancy Box Shipments.

Large canning and evaporating factories are important industries here. There are also several factories engaged in the manufacture of the many barrels, boxes and baskets required to handle the fruit produced. A feature of the business of the Biggs Fruit Company is the development of a large trade in fancy box apples shipped to private addresses in Great Britain. The firm undertakes, for a reasonable sum, to deliver one or more boxes of apples to any address in the British Isles, all charges prepaid. This enterprise has met with great favour, and during the past season it has been enlarged to include peaches, of which some five hundred cases were forwarded in the same way with great success.

The manufacture of concentrated lime and sulphur in a large way, is carried on here, a modern and well-appointed plant having been established for this purpose.

Niagara Peninsula.

West of Hamilton brings us to the section of the Province known as the Niagara District, and includes a portion of the County of Wentworth, and the whole of Lincoln, Welland, and Haldimand. Throughout the greater part of this territory, particularly along the south shore of Lake Ontario as far east as the Niagara River, are to be found the principal commercial peach orchards and grape vineyards of Canada. Many thousands of acres are devoted exclusively to the cultivation of these fruits, which here find a very congenial home. Extremes of temperature are so rare that a complete failure of these fruits seldom occurs; in fact, although the writer has been engaged in the production of fruit in this section for over thirty years, he does not remember a situation of this kind in his experience.

Intensive Methods Adopted.

Plums, pears, cherries and small fruits of all kinds are grown with ease and with a certainty of production which renders the business very reliable and profitable, if ordinary care and application are exercised. A trip through this section by railway, trolley or motor car during the summer season is an event to be remembered, and has elicited many expressions of astonishment and praise from delighted visitors. During the month of September, 1909, the biennial meeting of the American Pomological Society was held at the city of St. Catharines, at which time several trips were arranged through various portions of the country. Representative men from the more important fruit sections of the United States were in attendance and without exception these gentlemen were absolutely astounded at the extent of the industry and the intensive methods employed.

To mention in detail the important properties throughout this area would require considerable space, and be almost impossible. It must suffice, therefore, to refer only to one of two of the more extensive undertakings, in order to give a slight idea of the magnitude of the industry.

A short distance from the village of Winona, one of the several important shipping stations in this district, is situated the Heidelberg fruit farms and nurseries, owned by Mr. L. D. Smith. This gentleman is in all probability the largest single grower and shipper of fruit, both in its fresh condition and also preserved in glass or cans, in Canada. He controls and operates several hundred acres in bearing fruits and under nursery stock. In addition immense quantities of fruit are purchased from the surrounding territory for shipment to outside points. There is also erected on this property a splendidly equipped factory for the purpose of manufacturing pure jam and jellies from fruits of all kinds, for which an excellent demand has been created.

Near by is to be found the extensive orchards of Messrs. J. W. Smith & Sons, who are also largely engaged in the growing and shipping of fruit of all kinds, but who make a specialty of peaches. The peach orchards on this property are models for the country side, and have produced many very profitable crops.

The pretty village of Grimsby, located immediately below Wolverton's Point, one of the highest points in the escarpment running easterly through this section, to the Niagara river, is situated in the centre of this splendid fruit district. Extending for miles east and west on the main road, which is well served by an excellent trolley line, are to be found the palatial homes of many practical and successful fruitgrowers, who have contributed their quota to the enviable reputation which this district has gained.

Passing eastward through this section for some twenty-five miles, until the Niagara river is reached, a continuous panorama of orchards and vineyards is observed extending from the lake shore to the edge of the escarpment already mentioned, which runs almost parallel to the shore at a distance of several miles. This entire territory, including within its confines the villages of Grimsby, Beamsville, Vineland, Jordan, Queenston, Virgil and Port Dalhousie, the town of Niagara-on-the-Lake, and the city of St. Catharines, is most favourably situated for the successful culture of the more tender fruits. It will not be many years until the whole area will be entirely given over to this industry, which even now forms the principal occupation of those residing on the land. Above the Mountain in many sections, notably the townships of Pelham and Stamford, equally favourable conditions are to be found.

In the former townships are located two of the largest nurseries in Canada, those of Messrs. Davidson and Wellington at Fonthill, and of Brown Brothers Co., a short distance west. These firms supply a very large portion of the nursery stock planted from one end of the Dominion to the other, and are well known for their standing and reliability.

Several important co-operative organizations of shippers have been established to handle and distribute the large and increasing output of this district, the chief of which are the Canada Fruit Company, the Ontario and Western Co-operative Company, and the St. Catharines Cold Storage and Forwarding Company, besides many others of more or less importance. The output of fruit, exclusive of express shipments, for the season 1911 approximated twenty five hundred carloads. This fruit finds its way to practically every city, town and village in the Dominion east of the Rocky Mountains. Considerable quantities are also forwarded to the British markets, an important development of the past two years being the successful shipment of peaches to England primarily under Government direction and supervision, and also by enterprising individual growers and shippers. This undertaking promises to become very successful when the necessary care is taken in handling to secure arrival at destination in first class condition. At Jordan Harbour, midway between Grimsby and St. Catharines, has been established the Provincial Experimental

Farm. Very important results are hoped for in connection with the deve[illegible] and introduction of new and desirable fruits as the outcome of the [illegible] experiments being carried on here. A wonderful [illegible] open to the student of horticulture along these lines, and the value of wo[illegible] character [illegible] to estimate. It may take a number of years before [illegible] results may be secured, but the discovery and distribution of even one [illegible] of fruit of outstanding excellence, will justify years of patient effort. There is abundant opportunity for the production of many such improved varieties.

In connection with the St. Catharines Company, which is recognized as one of the most successful co-operative associations in the Province, a commodious and well equipped mechanical Cold Storage Warehouse has been constructed where fruit may be stored and cooled awaiting shipment to its final destination.

Along the banks of the Niagara river from Queenston to Niagara, are to be found some very fine and extensive peach orchards, in fact this section may be said to be the natural home of the peach. The orchards of Messrs. Fisher and Sons, Wm. Armstrong, Major Hiscott and others, will well repay a visit.

Near St. Catharines the splendid fruit farm of Wm. W. C. McCalls, known as Sunny Acres, is to be found. This farm is an outstanding example of the application of brains and energy towards the renovating of what was at one time a run down, unproductive farm, until it has become one of the show properties in the county, and is of course producing satisfactory returns to the enterprising proprietor.

While fruit land all through this district has greatly appreciated in value during the past few years, it is an open question, whether, based on the actual returns derived from the land under good management, it has yet reached its full value.

A feature to be noted, is the large number of canning factories that have been established at convenient points in various parts of the Peninsula. The Dominion Canners have no less than ten large factories in active operation, and in addition there are some nine or ten independent factories, all engaged in canning and preserving the fruits and vegetables, which are produced so abundantly through this territory.

There are several important fruit areas in the western part of the province, of which perhaps the county of Norfolk during the past few years has most rapidly been brought to public attention. Here is another example of the influence and value of an energetic forceful man in a community. A few years ago the orchards in this county, planted during a [illegible] enthusiasm which afterward subsided, were being looked upon rather as an incumbrance to the farm on which they were located than an asset, and were being absolutely neglected, and in many cases cut down and destroyed.

Mr. J. E. Johnson, however, arrived on the scene at an opportune time. This gentleman having imbibed some of the ideas of the "New Horticulture", and being possessed with a strong conviction as to the latent possibilities of these orchards, began a campaign of demonstration and practical education in connection with a few kindred spirits whom he enlisted with himself in this work.

This campaign was carried on with such energy and was so well directed, that in a very short time the result of the work was very much in evidence. Public attention was arrested, a co-operative association was organized, and to-day in this county, the apple orchard is counted as the most valuable asset to a farm. Large plantings of young trees are being made, and transfers of orchard property are taking place at what would have been considered fabulous prices a short time ago. These values are not by any means fictitious or extravagant, but are based on the actual returns from the orchards when carefully operated under approved methods of culture.

The success of Mr. Johnson's work in this county, has caused a revival of interest in many other apple sections of the province where similar conditions were prevailing. It will be very hard to estimate how far this movement will extend. There is no doubt whatever but the general standard of the average product of Ontario's apple orchards will be materially raised as a direct result of the efforts of this energetic, enthusiastic man.

Westward along the north shore of Lake Erie, the counties of Elgin, Kent and Essex range themselves in order. This entire district, where the elevation is sufficient, is well adapted for fruit growing, and at one time it was thought the deep sandy soils of some parts of Kent and Essex, would rival, if not excel, the peach lands of the Niagara peninsula, in the production of fine fruit. Extensive plantings of this fruit and also of grapes were made, but one or two severe winters about ten years ago so decimated and destroyed the peach orchards and grape vineyards, that the people have turned their attention more generally to other lines of endeavor, notably the growth and production of early vegetables and of corn and tobacco, for which the climate and soil seems particularly suited.

A number of resourceful men, however, among whom may be mentioned the Hilborns, Mr. J. D. Fraser, Mr. E. Adams and others, still believe that with careful methods of culture, these fruits can be successfully and profitably grown in this district.

The Season is Early.

The fact that fruit and vegetables ripen from one week to ten days earlier here, under ordinary conditions, than anywhere else in the province, is a very valuable asset to the district. This fact added to the well known fertility of the soil, makes this part of the province very attractive to anyone desirous of engaging in the lines of work just mentioned.

Apples, pears, plums and small fruits succeed admirably and on account of their early ripening, are quite profitable.

Lambton.

The County of Lambton is another section which is making a strong bid for recognition as a fruit centre, not only for apples which grow here to perfection but also for many of the tender fruits which the more southern counties were inclined to consider their special prerogative. In favoured localities a large number of extensive peach orchards have been planted during recent years and the residents of this county are very sanguine that they will be able to produce not only apples and the hardier fruits successfully, and profitably, but that the peach crop will be quite an item in their output in the near future.

Mr. D. Johnson of Forest, President of the Ontario Fruitgrowers' Association, and a very extensive grower and handler of apples and other fruits, is the leading spirit in Lambton horticultural circles. A very strong and successful co-operative association has been established here which has gained a very excellent reputation for the quality of its shipments to the western markets as well as abroad.

San José Scale.

Any description of fruitgrowing in Southern Ontario would be incomplete without some reference to the introduction and spread throughout several sections of this district of that once dreaded insect, the San José Scale, which for a time threatened the very existence of the fruit industry over a large territory.

Brought in from the United States in the early nineties, close observers detected its presence about 1897 in one or two widely separated localities. Active steps were at once instituted to forestall its further spread. The Provincial Department of Agriculture, at the request of the fruitgrowers, succeeded to remove all traces of the infestation by a rigid inspection of suspected orchards, and the destruction of all infested trees, since no methods of treatment at that time had been proven sufficiently satisfactory to be reliable.

The scale had, however, secured such a foothold and had spread so rapidly, that it was found impossible to check it by the methods adopted, and in some cases the remedy was considered worse than the [illegible]

Lime and Sulphur Spray.

The chief inspector, Mr. George E. Fisher, at the suggestion of the Commission appointed to consider ways and means to control this infestation, set about experimenting with various proposed remedies in the way of spray mixtures with the result that he was able to demonstrate that a solution of lime and sulphur of proper strength, thoroughly applied to the trees in the dormant state, was likely to prove a specific remedy against this insect, and could be used with confidence and every hope of success.

This discovery ushered in a new era in fruit culture in all sections where the scale had secured an entrance, from the fact that the spraying of the trees with this remedy has not only resulted in clearing up the San José Scale, but has also proved the mixture to be a most valuable fungicide, and in combination with arsenate of lead it has become the standard spray for very many of the fungous troubles, and insect pests common to the orchard. From this point of view, the infestation of this insect cannot be looked upon as such a great calamity, from the fact that through this circumstance better methods have been compelled, and while many fine orchards, particularly a number of large apple orchards, fell a prey to this minute but dangerous pest, the fruit industry as a whole is to-day on a better footing than ever before. Constant vigilance and thorough work is the price which must be paid, if this insect would be kept in check, but given these conditions, no up-to-date orchardist to-day seriously dreads the San José Scale. There are many other diseases and difficulties to be encountered in the prosecution of fruitgrowing, but the history of the fight against and control of this insect is interesting and perhaps unique in many respects.

The counties bordering on Lake Huron and the Georgian Bay, comprise a very large territory in which the residents are largely engaged in mixed farming as their principal occupation. Scattered over this area, however, are a great many apple orchards, generally of moderate size, which until recent years have not been receiving the care and attention which their value and importance should have demanded. In consequence of this neglect, considerable deterioration took place, and many of the orchards became unprofitable.

Extensive Educational Campaign.

This whole territory is now being brought under the influence of the campaign, which is being carried on by the Provincial Fruit Division, under the supervision of the director, Mr. P. W. Hodgetts. Most remarkable success has been attending the efforts put forth in a number of strategic points to renovate orchards which had been practically given up as of little value. For the past two years, apples from these demonstration orchards have been displayed at the Ontario Horticultural Exhibitions, which have evoked the most favourable comment for their excellent quality and fine appearance.

The attendance at the short course in fruitgrowing during the past winter at the Ontario Agricultural College, was largely composed of young men from

the farms in these counties who were extremely anxious to secure for themselves first hand information as to the most [illegible] methods to be adopted in order to secure from their orchards maximum returns.

There are several sections where [illegible] and small fruits are being large[illegible] and successfully grown.

The opportunities for the extension [illegible] production of winter apples throughout this territory, are excellent, and with [illegible] doubt be made use of as the people become more fully seized with the profitable nature of this industry.

District Re[illegible]atives.

A movement of recent years [illegible] Province, in connection with its agricultural development, has be[illegible]ntment of young men, college graduates, to the position of District [illegible]tatives in very many counties where their services have been requ[illegible] men in many cases are specialists in horticulture, and are well q[illegible] give practical advice, and take the lead in any advanced movement [illegible] [illegible]ed, having for its object the production of more and [illegible]

The idea which formerly prevail[illegible] [illegible]nt that if a man was unable to make a success of any other [illegible] capable of getting a living at farming or fruitgrowing, has [illegible] exploded. It is now clearly understood that there is no occ[illegible]ation [illegible] requires in its successful prosecution, greater capacity and more [illegible] knowledge and closer application, than that, of producing high class fruit, the rewards that follow are commensurate with the qualifications demanded.

The Province of Ontario offers to the prospective fruitgrower in almost every section which has been thus briefly described, unlimited opportunities to engage in a business which is at once attractive and desirable, and which will furnish adequate and satisfactory returns for the effort expended.

Newcomers Welcomed.

It has also within its borders a class of men who have succeeded in demonstrating the possibilities of the province from a horticultural standpoint, who have solved many of the problems and overcome many of the difficulties natural to a business of such varied character, and who will welcome to their ranks men of ability and perseverance who may be inclined to join them in securing from nature's storehouse, bountiful crops of the delicious fruits for which this Province is noted.

There is little to be found of the narrow-minded jealousy of a neighbour's success which is characteristic of some lines of human endeavour. They realize that the prospective markets are wide, and rapidly increasing, and that every addition to their number of the right stamp of men adds to the prestige of the industry as a whole.

Letter of Inquiry.

In the course of this inquiry, a circular letter was sent out containing a list of questions designed to secure from widely different sections, the judgment of practical men engaged in the production of fruit, and their candid opinion upon the several questions presented. A very large number of replies were received and although these fruitgrowers were working under vastly different conditions and carrying on their operations in different ways, there was, greatly to the surprise of the writer, a remarkable similarity in the replies in regard to the more important phases of the interrogations put before them.

A [illegible] supplied to [illegible] plies which [illegible] hundreds received. These go to prove conclusively that agriculture [illegible] planted to fruit is at once increased in value from two to tenfold. This [illegible] does not arise from any sentimental or [illegible] reason, but on account of the [illegible] cash returns to be obtained under [illegible] scientific management. They also show that while difficulties are to be met with, they can be successfully overcome by the average man who will apply himself, and that notwithstanding an important campaign in many sections to largely increase the present plantings of fruit there is no uneasiness [illegible] regards the probability of overproduction in the near future of fruit of a high quality, for much is to be demanded for a product of this kind is increasing faster than it can be supplied.

MANITOBA, SASKATCHEWAN AND ALBERTA

Manitoba Agricultural College.

On October 11 a visit was made to the Prairie Provinces, reaching Winnipeg, our first stop, in due course. A visit was paid to the Manitoba Agricultural College, where we were cordially received by Professor Black, Principal, and Professor Broderick, Horticulturist. Owing to the fact that the present grounds of the College are not at all adequate for the purposes intended, new grounds have been secured and extensive buildings are now in course of erection on the banks of the Red River, where there will be ample facilities for the various departments of College work. In connection with the new grounds, Professor Broderick is making extensive plans for the careful trial of all classes of fruit that give any promise of being successful in the climate of Manitoba. At the present time, owing to the unsettled conditions and lack of space, not very much has been done in this way. Professor Black believes that the small fruits, and possibly some of the hardier varieties of apples and plums, should prove successful in some portions of Manitoba, but from the fact that the cultivation of grain forms a quick and easy prospect of revenue to the average farmer, the culture of fruit has not been undertaken to any great extent, the impression prevailing that the time so spent might be largely wasted. Professor Broderick is giving a good deal of attention to the question of fruits suitable to this climate and hopes to be able to show some practical results in connection with his work in the near future.

Professor Bedford, who for a number of years had charge of the Experimental Farm at Brandon is, however, of the opinion that the scope for successful fruit culture in Manitoba is very limited.

Plum Growing in Manitoba.

A visit was paid the same afternoon to the nursery of Mr. D. B. Buchanan, at St. Charles, a suburb of Winnipeg. For many years Mr. Buchanan has been devoting a good deal of attention to the growing of nursery stock, and to developing some of the hardier varieties of plums of the Americana and Nigra groups. The result of his work in this respect is quite interesting, he having [illegible] about 25 varieties, several of which he considers as likely to be of considerable value. These native plums he has been distributing to various sections of the West and he believes that they should succeed in Alberta, Saskatchewan and parts of Western Manitoba.

Among the Americana plums, Mr. Buchanan has been successful with the Aitken, Cheeney, Odegard, Bixby and Mankato, and has also ripened varieties as late as De Soto, which he considers one of the best for commercial purposes.

It is prolific, good for canning, and he has kept it until January. In regard to cherries, the Compass is a good variety for this section, being very prolific and ripening about the first of September.

Mulching Strawberries.

With reference to the culture of strawberries, spring frosts and early summer drouths are the two things most likely to adversely affect the crop. By covering the plants with a heavy mulch as soon as the ground is frozen in the fall, keeping this on until late in the spring, and removing it to the centre of the row, these two difficulties are to a large extent obviated, and he has thus been able to grow the standard varieties quite successfully.

A number of the crab-apples, such as the Transcendant, Florence and Prolific, have done very well, as well as some of Dr. Saunders's hybrids, of which he considers Charles to be one of the best, although it has been found to be subject to blight both at Ottawa and Brandon, and on this account has not been recommended.

Mr. Buchanan is quite confident, from his experience, that a number of plums and some varieties of small fruits might be grown profitably in the vicinity of Winnipeg.

Stevenson's Experiments.

On October 16 a visit was paid to the farm and experimental grounds of Mr. A. P. Stevenson at Dunston, about eight miles from Morden, situated near the boundary line in Southern Manitoba. Mr. Stevenson came into this section in 1874 and immediately began to experiment with fruit, attempting to grow the standard eastern varieties, which did not prove successful. He, however, persevered, and in 1890 planted one year old trees of some 80 varieties of the newly introduced Russian sorts. The majority of these also died as a result of the rigorous climate, but 15 of them proved to be hardy, and these, with a few other varieties, have borne profitable crops of fruit for the past ten or twelve years, and are of very good size and quality. Perhaps the best of these, in order of ripening, are the following: Blushed Colville, the best early; from three trees of this variety, nine years old this year, two barrels of fruit were harvested. This variety is followed by Charlemoff and Anisette, both of which are very good, and the Simbrisk, of which there are two strains, Nos. 1 and 9, both having proved hardy and satisfactory. The best winter varieties are Ostrakoff, Antinovka, and Hibernal, the first of these three being considered the most valuable variety in the collection. Hibernal is perfectly hardy, and one tree produced five barrels of fruit the past year. It is, however, quite astringent in flavour. Amongst those not included in the above list, but which are growing satisfactorily, Mr. Stevenson mentions Ukeraine, Volga Anis, Kourish Anis, Gypsy Girl, Heron, Lowland Raspberry, Wealthy, Peerless, Red Checked and Ripka Kislaga. He is also propagating a large number of seedlings of these varieties, and reports the fruit of some of them to be of fine size and fair quality. A number of the Minnesota seedling apple trees are also being tested, those most worthy of mention being Perkins and Wilfort Seedlings.

Some experiments have been conducted to improve some of the wild native plums. By selection and grafting Mr. Stevenson has succeeded in securing a red plum, which he has not yet named, that is proving very satisfactory. Of the Americana varieties Cheeney, Surprise and Aitken have also done well. The Compass cherry is the only one that has given any satisfaction and of these he had a good crop last season. There is a great variety of small fruits growing on this place, raspberries requiring to be covered for the winter, and nearly all varieties doing well under this treatment. The Lowden seems to be the best

of the red sorts, although Herbert is quite satisfactory. Cuthbert has been abandoned.

Mr. Stevenson deserves a great deal of credit for the work that he has been doing in blazing the way in the midst of difficulties that would seem almost insurmountable, to assist in securing for Manitoba some fruits that would succeed moderately well under the conditions found in this province.

Fruit at Morden.

In the town of Morden a visit was made to the home grounds of Mr. Alex. MacLeod, who for a number of years has been endeavouring to beautify his place with shelter belts and an assortment of fruit trees. On this place there is one tree of the Borovinka apple, 13 years of age, that has borne annual crops for a number of years. This apple is very similar to the Duchess. The stock was obtained from the Agricultural College at Ames, Iowa. Mr. MacLeod has exhibited fruit from his place at some of the local fairs and at Winnipeg with considerable success. He has also done a good deal to encourage the planting of trees in an amateur way among his neighbours, and the various gardens in the town of Morden bear evidence of the public-spirited work of both Mr. MacLeod and Mr. Stevenson in this regard.

It would seem altogether likely that in certain favoured districts in this section where good shelter belts are to be found, or where they could be provided, the culture of some of these more hardy fruits could be carried on successfully, if not in a commercial way, at least in a sufficiently extensive manner to provide fruit for domestic use.

Shelter Belts Necessary.

With reference to the general conditions in Southern Manitoba, the soil is a rich black loam, varying from 18 to 36 inches in depth, and is extremely productive. The prevailing wind is from the northwest and in order that fruit might be successfully grown it would be necessary to have the trees adequately protected by shelter belts on the north and west sides, in addition to securing a class of trees that have been proven to be fairly hardy. Quite a number of sites of this character were observed in the vicinity of Morden, where there were first class shelter belts of native growth already in existence, and it would appear that further experiments might be made on a more extensive scale in some of these sheltered positions, as there are doubtless thousands of other similar locations throughout the province. There are a number of trees that could be utilized as windbreaks. Mr. MacLeod finds the laured-leaved willow very satisfactory for this purpose. It grows readily from cuttings, is quite hardy, and holds its leaves for a month longer than any of the other deciduous trees. Some attempts have been made to establish the Norway spruce, but up to the present the severe winter storms have had an injurious effect upon it.

Strong Demand for Ontario Fruit.

In looking over the possibilities of an extension of the trade in fruit in Southern Manitoba, Mr. McGowan, a general merchant who had ordered a car or two of winter apples from Ontario, stated that these were costing him $5.12 per barrel delivered, chiefly Spies, Tolman Sweet, and Ben Davis. He thinks the McIntosh Red would sell in that district at excellent prices if it could be obtained in good condition. He had experienced considerable trouble in the past in securing apples properly packed in accordance with the Fruit Marks Act.

Auction Sales of Fruit.

Returning to Winnipeg a day was spent in connection with the wholesale fruit trade, and several of the large houses were interviewed. The MacNaughton Fruit Exchange has handled, during the past year or two, a considerable portion of the fruit from the St. Catharines district, and has sold the same by auction sale at regular intervals. This firm states that by this method it is able to distribute large quantities of fruit and place it in the hands of dealers quickly, and generally at fair prices to the shipper. Occasionally, when for any reason fruit has arrived in bad order, or an extra supply has been placed on the market, comparatively low prices have prevailed. On the whole they considered the auction sale the best method by which to dispose of perishable fruit. As opposed to this view, the other large wholesale houses in the trade claim that this system demoralizes business and does not work out to the advantage of either grower or dealer. They also agree in the demand that more care should be taken in the sorting and packing of fruits from Eastern points for the Western markets. Transportation charges are high and the commodity must necessarily sell at a fairly good price in order that the grower should receive reasonable returns from his product. It is absolutely impossible to secure satisfactory prices for goods carelessly or improperly sorted and packed, reaching the markets in an undesirable condition. It is admitted, however, that there has been a great improvement in recent years in this respect, and that there are numerous packers in the east who are now obtaining a first class reputation for their goods on the wholesale western markets.

Best Method of Distribution.

Probably the most satisfactory solution for the distribution of domestic fruits in this market would be by means of a reliable, independent broker, dealing with the wholesale trade at large in the interest of the shipper and having no direct connection with any of the wholesale houses. Such a man, assisted by the inspectors of the Federal Government, would be able to settle, in a fair and equitable manner, any difficulties that might arise from time to time, could keep the shipper posted as to any special conditions in the market, and be in a position to distribute shipments to best advantage.

Messrs. Maycock and Toms, who, in addition to fruit from Ontario, handled 86 cars of Nova Scotian apples during the past season, stated that much of the latter fruit was under size and many dealers did not consider it up to grade, but this being the first year for their fruit to enter the market they were disposed not to criticize it too severely. As these apples necessarily come into competition with the larger sized fruit from the west, it will be necessary to establish better grading if it is hoped to make any decided impression upon the market. They do not consider the basket package now in use for the larger portion of the tender fruits of Ontario, to be satisfactory for the western trade. They believe that the four basket crate, carefully packed and properly loaded in the cars, so that the fruit would not move during transit, is by far the best package for the long distance shipment.

Better Grading and Better Packages Necessary.

Mr. Grisdale of the MacPherson Fruit Company practically emphasized the opinions expressed by the other houses with reference to the necessity for more care in handling, better fruit and more satisfactory packing and packages for the western market. He stated that if the growers in the eastern provinces could only learn to put up their fruit in a more satisfactory way, they could undoubtedly hold this market, but under existing conditions the dealers were forced, to a large extent, to give the preference to foreign-grown fruit

This point cannot be emphasized too strongly, that it is absolutely useless and suicidal for any shipper to expect to establish a trade in long distance shipments, without first taking the trouble to ascertain the class of fruit in demand in any given market, and then acquainting himself with the best practice, both in grading and packing, so that his product may reach the dealers' hands in reasonably good condition and be of attractive appearance.

Nova Scotia Box Fruit in Good Condition.

A visit was paid to several of the retail stores, in one of which we found a very fine lot of Nova Scotia Gravensteins in boxes, which were well packed, of good colour, and attractive in every way, selling readily for $2 per box. In the fruit department of the T. Eaton Company's large departmental store, we found No. 1 Wealthy apples from the State of Washington selling retail at $2.25 per box. No. 1 Ontario Greenings $5, No. 1 Baldwins $5.50 and No. 1 Northern Spies $6 per barrel. These apples were all apparently packed in accordance with the Act and were giving satisfaction to the firm and to its customers.

Poor Fruit Entails a Loss.

In another retail fruit house in this city we found a large quantity of unattractive, poorly packed and graded fruit, both in boxes and barrels. Some of this at one time had been fine fruit, but by over-pressing nearly every specimen in the barrels had been ruined. Other barrels contained considerable quantities of fruit that should not have been packed for shipment at all, but ought to have found its way to the evaporator or the cider mill. This stuff was being slowly worked off at the best prices obtainable, and would not likely bring any profit to the shipper.

Saskatoon.

Leaving Winnipeg, the next stop was Saskatoon. This place, owing to the rapid increase in the population within the last two or three years, is becoming an important centre for the distribution of fruit. Quite a number of cars, of both Ontario and Nova Scotia fruit, were received here and disposed of to fair good advantage. This city will be prepared to absorb increasing quantities from year to year.

Edmonton.

Passing on to Edmonton, a day was spent in this important city, which is the distributing point for a very large territory. Here we saw Nova Scotia Gravensteins from the orchard of Mr. F. A. Parker at Berwick. Several barrels of this stock were opened and found to be well packed and in fine condition. Mr. Anderson, the shipper for the Brown Fruit Company, stated that this was a most excellent car, and was selling readily at $5.50 per barrel.

Dempsey's Snows and Kings

This firm had also in stock a car of Ontario Kings and Snows from Messrs. P. C. Dempsey and Son of Trenton. These were of excellent quality and were selling wholesale at $8 per barrel and we also found them at retail on Jasper Avenue at $9 per barrel. Here was conclusive evidence of the value of quality and care in packing stock of this character, which was realizing the shipper excellent returns and giving satisfaction to all parties concerned in the handling of it.

Ontario Grapes Wanted.

This firm had sold a number of cars of Ontario grapes during the past season which, with one exception, had arrived in good condition and found a ready market at from 40 to 50 cents for six quart baskets. They would recommend, however, that grapes for this market be packed in smaller packages, and considered that the four pound package would be satisfactory for the trade. It was a somewhat difficult matter to handle the more tender fruits from Ontario, but apples, pears, grapes and tomatoes, under favourable conditions, should arrive in good order and do well.

The Royal Fruit Company was also interviewed. Mr. Brown of this firm stated that the majority of the fruit that they had received from the east this year had arrived in good condition and given satisfaction. They considered, however, that the rates of transportation were too high, and that better despatch with lower rates were necessary if the trade was to be encouraged.

Freight Rates Excessive.

The rates charged by the Canadian Pacific and other railways over the prairie section of the road are excessive and quite out of proportion—distance being considered—with the rates prevailing in the eastern division. Steps should be taken to have these rates adjusted and put on a more satisfactory basis.

Strawberries Successful.

Mr. F. T. Fisher, President of the Edmonton Board of Trade, believes that in time some of the hardy varieties of apples, plums and cherries will be successfully grown in this vicinity, although up to the present no attempts have been made to grow these fruits. The small fruits, particularly strawberries, as far as they have been tested, have proved very successful and profitable, and at the present time there is an excellent opening for increased plantings of this class of fruit. The vicinity of Edmonton does not suffer from spring frosts or summer drouth as is the case in Southern Manitoba. It is safe, nine years out of ten, to plant vegetables on the first day of May and there are no frosts until the middle of September in an ordinary year. Once the ground is thawed out in the spring there is little danger of subsequent frosts and consequently the risks in this respect are reduced to a minimum. Mr. Fisher believes that a Dominion Experimental Farm at or near Edmonton would be very desirable, as the conditions obtaining at Lacombe are very different to those in the territory surrounding Edmonton. If it could be shown that fruitgrowing was commercially a possibility, farmers in this district might be induced to endeavour to grow at least a sufficient quantity to supply the local demand.

Leaving Edmonton, our next stop was Calgary, on the main line of the C. P. R., some 200 miles south of Edmonton, where the wholesale trade was interviewed, the first call being upon the MacPherson Fruit Company. In the absence of the manager Mr. Morrison, the chief accountant Mr. Folkins, kindly vouchsafed information in reference to the conditions obtaining in this city. This firm during the past year has been compelled to confine its trade largely to the handling of fruit from south of the line, chiefly on account of the unsatisfactory manner in which fruit from Eastern Canada has been received. Over 100 cars of Washington State apples had been received and distributed during the past month, while they have not handled a single carload of Ontario fruit during the year. With the large extension of orcharding in British Columbia he believes that if proper methods were adopted this trade could be largely controlled by shippers from the western province.

Mixed Cars Wanted.

Mr. Plunkett of Messrs. Plunkett and Savage, on the other hand, stated that his firm had handled a number of cars of Ontario grapes this year, and believes that mixed cars consisting of apples, pears, tomatoes and various lines of vegetables that will stand carriage, should find a ready market in Calgary. The Greening apple is not in favour in this market, people preferring a red apple, and the box package is very much more desirable than the barrel. One of the advantages that the fruit from the State of Washington has over Canadian fruit is the fact that it ripens earlier in the season and deliveries can consequently be made much earlier, thus avoiding danger from frost. Dealers in the small towns are desirous of getting their fruit in good season, in order that their customers may be supplied before the cold weather comes on. Mr. Plunkett considered that the packing and grading of fruit from the south was generally better than that from either British Columbia or Ontario.

British Columbia Fruit Depot.

Mr. S. J. Fee, manager of the Calgary branch of the Vernon Fruit Company, established a business in Calgary with the object of increasing the sale of British Columbia fruit. So far Mr. Fee's efforts in this respect have met with success, and everywhere in the west shippers speak in favourable terms of his endeavour on their behalf. Mr. Fee considers it very necessary that very material improvements should be made in the conditions for the handling and transporting of fruit from both Ontario and British Columbia to the central prairie markets, and believes that just as soon as these improvements can be effected, an enormous trade will be developed. At the present time the prices to the consumers are exorbitant, and tend very much to restrict trade, while the grower, owing to the cost of transportation and the difficulty of placing his product on the market, is not receiving adequate returns for his labour.

BRITISH COLUMBIA.

Revelstoke.

Entering British Columbia, our first stop was at the town of Revelstoke, the gateway to the Arrow Lakes district. Here we met Mr. Bruce Lawson city clerk, who owns a fruit plantation in the vicinity of the town. He states that the summer apples did well in this locality, but he is now planting chiefly Wealthy, McIntosh Red and Alexander, with a few cherries and plums. He considers the land adjacent to the town exceptionally suitable for small fruits, strawberries, raspberries, red and black currants growing almost to perfection. Owing to location on the main line, the shipping facilities are good. He believes this point presents favourable opportunities for considerable extension in the production of nearly all kinds of hardy fruits.

Nakusp.

From Revelstoke a trip was made down the Arrow Lakes as far as the town of Nakusp. At this place, at the Needles and at several other points along these lakes considerable effort has been put forth to establish fruitgrowing.

Until a few years ago the land at Nakusp suitable for the production of fruit, had been held intact by the Canadian Pacific Railway and was not available for settlement, but since this valley has been thrown open to the public considerable activity has taken place throughout this section.

Apple Trees Bear Early.

Mr. Thomas Abriel, who has resided here for a number of years and has given considerable attention to the subject, has planted some very fine young orchards on land that has lately been cleared from the forest. These orchards are healthy, the trees are making a strong rapid growth, and begin to bear fruit very early, a Wealthy tree not yet four years planted being pointed out as having borne over three boxes of apples in 1911 after severe thinning.

We visited quite a number of the settlements in this locality, and found all the owners well satisfied with their holdings, and endeavouring to develop them as fast as possible. There are in this immediate vicinity several thousand acres which may be cleared and devoted to fruit, the land consisting of a series of "benches" of varying altitudes, and for the most part densely wooded. This valley, however, is only one of a number of similar areas extending along the entire length of these lakes, which are some 129 miles in extent. Owing to considerable rainfall in summer, aided by seepage from the mountains, and large quantities of snow during the winter season, irrigation throughout this district is not considered necessary.

B. C. Apples Prize-winners.

Further down the lakes there are some orchards of earlier planting which have become established and which are now producing considerable quantities of superior fruit. We were shown at the hotel fine samples of McIntosh Red apples and Lombard plums which were grown at the Needles, where considerable planting has already been done. Captain F. G. Fauquier, a well-known fruit-grower in the last named place, made a number of exhibits at the National Apple Show at Spokane during the past year, and in competition with other parts of British Columbia, Washington and Oregon, received seven first and four second prizes out of fourteen entries for apples grown on his ranch.

There are also lower lying sections of deep alluvial soil, the wash of the mountain sides, which are well adapted for luxuriant vegetable growth. Celery, cabbage, and all other kinds of vegetables do well. Potatoes, while perhaps not of as high quality as those grown on higher elevations, are smooth and handsome, finding a ready sale. The vegetable business here, however, is largely in the hands of the Chinese, who seem to take naturally to vegetable gardening in the west.

Okanagan.

Leaving the Arrow Lakes, we next branched off the main line of the C.P.R. at Famous Junction, en route for the famous Okanagan Valley, which, on account of the enterprise and effort of the various development companies and individual growers of the district, has not only come to be well known in British Columbia and throughout the Dominion, but has also had the attention of the outside world drawn to the opportunities which are here presented for profitable fruit and vegetable culture.

Armstrong a Centre for Vegetables.

The first two places of importance before reaching the Lake district proper are the towns of Enderby and Armstrong on the branch line running south to the head of the lake. These two places, particularly the latter, have become noted for the large quantities of vegetables of all kinds that have been produced here during the past few years, the trade in which has become the chief industry of the people, and has assumed large proportions. There are considerable

areas of upper bench land adapted for orchard purposes, where irrigation is not essential, there being sufficient precipitation. Some three or four hundred acres of this land have already been planted, and further planting is going on at the present time.

At Armstrong we met several prominent gentlemen, among them Mr. W. F. Brett, who has a young orchard ten acres in extent, and who is extremely enthusiastic as to the likelihood of this section becoming an important fruit-producing centre. From this town shipments of several hundred cars of vegetables, with some fruit, are now annually being sent out, chiefly to the prairie markets, there being three large distributing houses established here.

Coldstream Estate.

At the head of the lake the city of Vernon is located. This place is well known as the site of the celebrated Coldstream Ranch, a large undertaking established by Lord Aberdeen some years ago when Governor-General of Canada. This estate has probably one of the oldest commercial orchards in the valley, and at the present time has 548 acres of orchard in various stages of growth, owned and operated by the company, with an additional three hundred acres, one, two and three years old, planted for clients, and a further two thousand acres ready for planting. A very extensive irrigation scheme has been developed, which contemplates supplying water to the surrounding fruit district, comprising several thousand acres of land. A considerable area of this has already been planted, a portion of which is bearing profitable crops of fruit.

Long Lake Subdivision.

In addition to the orchards of the Coldstream Estate Limited, special mention might be made of the property known as the Long Lake Subdivision, consisting of a block of some 700 acres on the slope of Long Lake. This property is one of the show districts of the West, and comprises an almost entire solid block, consisting chiefly of apple, pear, plum and cherry trees which range in age from two to seven or eight years. It was subdivided and planted by the Coldstream Estate and is now owned by a considerable number of gentlemen who are specializing in orchard culture.

Land Companies and Co-operative Associations.

Mr. John Kidston, a Director of the Okanagan Fruit Union, a co-operative association of shippers, is probably the largest individual orchard owner in the vicinity, having 120 acres in fruit, on which there are now planted about 14,000 trees of different kinds, chiefly apples. Mr. Kidston's crop in 1910 was 8,000 boxes, although at that time his oldest trees were only six years of age.

In addition to the company previously mentioned, the Land and Agricultural Company, a corporation under the control of a Belgian syndicate, has also developed a considerable area of land and is planting fruit trees each year in this immediate vicinity on a large scale. The Okanagan Fruit Union and the Vernon Fruit Company, co-operative associations for the handling of fruit, have headquarters in this city and have erected commodious warehouses for the receiving and handling of large quantities of fruit, and are establishing an extensive trade. The membership of these associations includes a large number of the principal fruitgrowers of the Valley.

The favourite varieties of apples are Jonathan, Wagener, Northern Spy and McIntosh Red. Cox's Orange and a number of other varieties are also grown, but those previously mentioned seem to be the most popular and are being most largely planted. A number of varieties of plums and cherries are

doing well, but the prevailing opinion seems to be that the apple industry is destined to be most successful and profitable in this district.

Kelowna.

On either side of Lake Okanagan, between Vernon and Kelowna, there are a number of locations that are more or less important. The city of Kelowna is, however, the centre and the most important fruit producing point on the lake, owing to the fact that in the valleys stretching away from the lake at this point there are some thirty or forty thousand acres of land available for development, and also because this place has been fortunate in having early attracted the attention of some of the pioneers in fruit culture in the Valley.

Irrigation Companies.

Mr. T. W. Stirling and Mr. Pridham were probably the first two gentlemen to undertake orcharding at this place in anything like an extensive manner, and having become convinced of the possibilities offered for profitable orchard culture here, they began planting in a moderate way about 1892. These orchards were so successful that further plantings were encouraged. Their success led to the organization of several strong companies whose object has been to provide a satisfactory and comprehensive scheme of irrigation for the several areas of land included in the valleys adjoining the town proper. In consequence, there are at the present time four companies in operation, each of which has expended large sums in establishing irrigation plants on a very extensive scale. It is estimated that these companies will have expended $2,000,000 on completion of the work in hand.

The oldest and first in point of development is known as the Kelowna Land and Orchard Company, of which Mr. Stirling is President. His original orchards, now under the control of the Bankhead Orchard Company, are probably the finest in British Columbia. The Kelowna Land and Orchard Company originally held about eight thousand acres of land, of which area about three thousand acres have been developed and one thousand acres already planted to orchard during the last six years. The first plantings are now in bearing and have already produced considerable fruit.

The next company in order, known as the Central Okanagan Land Company, is developing about eight thousand acres of fruit land and also furnishing the water for an additional two thousand acres. The irrigation system established by this company is of the most permanent, modern character, consisting of a system of concrete conduits and pipes with steel flumes, having at present in operation over 13 miles of concrete mains, to say nothing of the large number of distributing systems which carry water to the various sections of this area. A distribution of one acre foot of water is contemplated, an amount considered to be ample for all necessary purposes. The water rental per acre ranges from $2.50 to $8, according to the quantity of water required, the average cost working out about $3 per acre per annum. About 2,500 acres of this company's land is planted to orchard, varying in age from four years planted to the fifty thousand trees which were planted last year. Some four year old trees are bearing and in one instance a ten acre block produced one hundred boxes last season.

The Belgo-Canadian Fruitlands Company is allied to the Land and Agricultural Company at Vernon, and is developing about six thousand acres of land, nearly all suitable for the production of fruit. This company will have its water available next season, having an immense storage reservoir about thirty miles back in the mountains. Their land, as well as a large portion of that held by the Central Okanagan Company, has been subdivided with reference to the

A peach orchard on suitable soil with careful handling will bear profitable crops even at an advanced age.

One of the famous peach orchards of the celebrated Niagara district in Ontario. Similar orchards may be found in the southern Okanagan Lake district of British Columbia.

A well cultivated vineyard. A source of satisfaction and a reliable income producer.

Typical transformation of British Columbia Bench Lands.

[illegible] is giving a better and cheaper distribution of the water surface. The [illegible] cost of the irrigation system on this property is estimated at about $350,000 or $60 per acre.

The South Kelowna Land Company controls between five and six thousand acres, three thousand of which are subdivided and contoured. The water system, which is extensive and will be of a permanent character, is being rapidly developed to cover the entire holding.

The above-mentioned companies control the larger portion of the land at Kelowna, with the exception, as already stated, of a considerable number of independent holdings of greater or less extent. It is expected that nearly 50,000 acres of the land in this district will eventually be brought under the water system and become fruitful and productive land for farms and orchards.

Shipping Facilities Good.

There are three extensive distributing agencies located at Kelowna, consisting of Messrs. Stirling and Pitcairn, the Farmers' Exchange and the Vernon Fruit Company. The first named is the oldest firm in the province handling fruit exclusively, and has forwarded fruit in car lots to China and Australia, as well as to Great Britain. Its trade in the prairie provinces is extensive and increasing from year to year, the shipments of fruit to these markets alone having amounted to 150 cars in 1910.

The Farmers' Exchange has a magnificent warehouse, 66 feet wide by 160 feet in length of re-enforced concrete, with a storage capacity in the basement of over six hundred tons, and excellent facilities for the handling of cars of fruit and produce. This organization is co-operative and has the support of a large number of growers in the district. During the last season, although the crop was small, this company handled 331 cars of fruit, produce and general supplies.

The Vernon Fruit Company, under the management of Mr. John Speer, has also had a very successful season. All these companies have branches at various points in the Valley.

[illegible] Growing Profit[illegible]

In company with Mr. F. A. Taylor, Acting Manager of the K. L. O. Company, Dr. W. H. Gabbies, President of the Central Okanagan Co., Mr. B. McDonald, Manager of the Farmers' Exchange, and Mr. J. M. Robinson of Naramata, a pioneer in drawing public attention to the value and possibilities of this valley, a very interesting trip was made by motor through some of the principal orchards in the surrounding districts. Several prominent fruitgrowers were interviewed, Mr. John Reekie being perhaps a type of the successful orchardist at this place.

He has a fine property of about 35 acres in extent, fully planted and now beginning to produce profitable crops of fruit. His trees range from one to eight years of age and he values his orchard, based upon actual returns, at fully $1,000 per acre. He is centering his efforts upon the better classes of apples and pears, cherries, currants and gooseberries, all of which are commercially valuable with him. Mr. Reekie is a gentleman who is not making his money out of the sale of land but out of the crops produced from his orchard and is thoroughly satisfied with the prospects afforded him in this country.

Numerous other fine orchards were visited in the course of the day. Inquiries made of the substantial character of the irrigation ditches that are being provided. A feature of the situation where such systems have been established, and one which must not be overlooked, is that a good supply of pure domestic water is available, and consequently the most modern sanitary conveniences may be installed in every country home in these districts.

A careful survey of the entire situation would [illegible] the observer [illegible] the city of Kelowna and the surrounding territory [illegible] destined to become exceedingly important centres for the production of fruit [illegible] very best quality. Mr. McDonald gives the following [illegible] the various fruits that are commercially valuable in this [illegible]

Apples—McIntosh Red, Wealthy, Spitzenberg, Yellow Newtown, Jonathan, Wagener.

Pears—Bartlett, Anjou, [illegible].

Plums—Pond Seedling, Yellow Egg, Italian Prune, Bl[illegible] Diamond.

Cherries—Black Tartarian, Royal Anne, Bing, Oliver.

[illegible] sweepstake car of Jonathan apples at the Vancouver [illegible] 1910 was grown at Kelowna and packed by Mr [illegible] of the Kelowna Farmers' Exchange.

Large Peach Orchards

On the east side of the lake the steamer stops at the thriving towns of Peachland, Summerland and Naramata, all of which have considered [illegible] well adapted for the production of apples and pears. Owing to a somewhat milder temperature, extensive plantings of peaches have been made at these points. While large crops have been produced, the concensus of opinion now is that the cultivation of the hardier fruits will prove more satisfactory and profitable and consequently attention is being turned more generally to the planting of the apple and pear. Further experimenting, however, may demonstrate [illegible] some varieties of peaches may prove profitable and be encouraged.

Apples for the London Market.

[illegible] Summerland some of the finest apples grown on the [illegible] and it was from this point that the champion mixed [illegible] of apples [illegible] at the National Apple Show at Vancouver. In company with [illegible] Thompson and David Watson, a motor trip was made through [illegible] visiting some of the more important orchards, amongst them the [illegible] Thompson himself, and Mr. R. H. Agur, President of the British [illegible] Growers' Association. Mr. Thompson has been growing fruit [illegible] of a number of years and has taken a prominent part in every [illegible] fruitgrowing in this place. He has at the present time [illegible] acres in bearing and at the time of our visit he was shipping [illegible] apples, which is one of his specialties, to [illegible] to be a very valuable apple for the warm [illegible] appearance and excellent quality. [illegible] Mr. Thompson [illegible]

Fruit Lands Advance.

[illegible] Summerland, Peachland and Naramata, have been founded [illegible] through the energy and ability of Mr. J. M. Robinson, who now [illegible] of Naramata. Perhaps no single man did more in the beginning for the [illegible] Okanagan Valley than Mr. Robinson, and he has the satisfaction of [illegible] ten or twelve years ago rapidly being fulfilled. At the [illegible] occurrence for well-developed ranches to change [illegible] to $1,000 per acre in these various places.

[illegible] merland is considerably broken, presenting a most varied [illegible] which is extremely pleasant to the eye. Abrupt hills and [illegible] vary the scene, and numerous orchards, mostly in the early [illegible] found throughout the district. In the course of a [illegible] even now considerable, will be quite im- [illegible] amount of alkali land in evidence in this district [illegible] portions of the valley, but this is limited in extent. It would [illegible] for the intending investor to make a personal inspection [illegible] prospective property, or at least to secure a reliable and independent [illegible]

Penticton.

At Penticton, which is the most southern point on the lake, a day was spent [illegible] Mr. E. W. Mutch. This gentleman, on account of limited capital, selected [illegible] would be considered a most unpromising piece of land upon which to [illegible] orchard. With infinite pains and labour he succeeded in clearing [illegible] and of the large quantity of stone with which it was covered and has now a [illegible] fine property. [illegible] has made considerable plantings of peaches, as well as [illegible] and looks forward to harvesting some fine crops.

A drive was taken for some [illegible] miles along the eastern side of the [illegible] passing through almost continuous orchard. The peach orchards here [illegible] appearance with those in the Niagara district of Ontario, [illegible] transported to that celebrated section.

A stop was made [illegible] the ranch of Mr. Munsen, a beautiful property [illegible] which a large number of peach trees [illegible] situation no frosts whatever had [illegible] their final picking of tomatoes at [illegible]

[illegible]

[illegible] Naramata was very thickly studded with [illegible] predominate at the present [illegible] more generally to [illegible]

Mr. [illegible] South Okanagan Land Company, gives [illegible] most suitable to the district. Jona- [illegible] Rome Beauty and Winter Banana. [illegible] Wealthy, and Jeffreys is a splendid early [illegible] Mr. Power also stated that the people felt [illegible] peaches, and were beginning to realize that [illegible] care cultivation must be abandoned.

[illegible] American varieties of grapes, and also [illegible] produced successfully. Not very much [illegible] small fruit or truck crops, owing to lack of [illegible] improved the people will be able to [illegible]

[illegible] their attention to [illegible] crops as well. This place is growing very [illegible], having doubled its population during the past year.

SALMON ARM.

Returning north to the Main Line the next stop was at Salmon Arm, situated on the southern arm of Shuswap Lake. This district has an abundant precipitation, irrigation not being necessary. The land is for the most part heavily timbered and it requires considerable labour to clear and prepare it for planting, but once this has been accomplished it is fertile, and fruit trees grow quite freely. A co-operative organization, known as the Farmers' Exchange, is in operation here, and about 25 cars of fruit were shipped out last year in addition to a large number of shipments by express. Small fruits do well and seem to stand up in transit better than from some other sections, the Company having shipped small fruits in good condition to several points in southern Manitoba.

Apple growing is rapidly extending, and the land is being planted almost as fast as it can be cleared. A visit was paid to a number of orchards in this vicinity notably those of F. D. Nicholson, Robert Turner, and Messrs. Fortune, Pangman and Stirling. Some bark injury was noted but on the whole the orchards were well taken care of and in a thrifty condition.

The favourite varieties here are Jonathan, Grimes Golden, Wealthy, Wagener, McIntosh Red and Northern Spy.

Mr. Sharp, late Superintendent of the Experimental Farm at Agassiz, who has a wide knowledge of the fruit situation in many sections of this Province considers this point one of the best for the production of fruit of high quality and good colour.

FEW STANDARD VARIETIES BE[illegible]

[illegible] has an orchard of some 1,600 trees, and is endeavouring to produce fancy fruit by careful spraying and thinning. He has confined himself to three varieties, namely, Wealthy, Jonathan and Northern Spy, in equal [illegible] Wealthy trees at four years of age averaged him one and [illegible] fruit boxes to the tree, and this year at six years old 225 trees produced six [illegible] boxes which netted $1.65 per box for the [illegible] Spy.

[illegible]

Walachin.

About thirty miles further west at Walachin another large irrigation project is being established by the British Columbia Horticultural Estates Company, and the Barnes Estates. Their lands are situated on both sides of the Thompson River and consist of between three and four thousand acres. The water is obtained from a chain of lakes in the mountains, and an extensive planting has been in progress for the last two or three years. The favourite varieties are Jonathan, Rome Beauty, Spitzenberg and Yellow Newtown, with Winesap and Wagener as fillers. A small orchard has been in existence on this place for a great many years, and has produced quantities of excellent fruit.

B. C. Potatoes Fine Quality.

Between here and the Coast, at Ashcroft, Spence's Bridge and Lytton, are considerable areas of land that are being utilized in the production of fruit and vegetables. The Ashcroft potatoes are widely known for their excellent quality and at the towns of Spence's Bridge and Lytton are to be found orchards that have produced fruit which has carried off first honours at many exhibitions, notably the Royal Horticultural Exhibition at London.

As the Coast is neared a section is reached which is better adapted for small fruits, and at Mission Junction, Hatzic, Hammond and New Westminster, small fruits are freely grown, a large portion of which are shipped to the prairie markets.

Vancouver.

The city of Vancouver, the metropolis of the Coast, provides an excellent market for fruit and up to the present time, owing to various conditions, the local supply has not been equal to the demand. Consequently high prices have prevailed and large importations are of necessity made from the ports in the United States to the south.

There are a number of important fruit firms here, which during the season conduct a very extensive business, several of which were interviewed. It has been freely stated by British Columbia growers that preference was being given to American-grown products, to the disadvantage of those produced in their own province. Upon investigation it was found, however, that large sections of British Columbia were not able as yet to compete on equal terms with the fruit brought in by water from the south. As a rule the dealers have not found the grading and packing of British Columbia fruit to be as uniform or of as good quality as that which their southern competitors send into this market. At the time of our visit there was an excellent demand for all fruit of good quality that was being offered, wholesale prices ranging from $1.50 to $3 per box and ranging from $2 to $4.25, depending upon the variety and quality.

More Fruit Needed.

During the past two or three years the dealers have not been able to secure sufficient quantity of local grown small fruits to supply the trade, and consequently prices have been abnormally high. At the present time there is an excellent opening for a very great increase in the production of small fruits, for which the Lower Mainland is particularly well adapted. One reason, possibly, for the tardiness with which the Coast grower undertakes to supply the growing demand for small fruits is the difficulty in securing satisfactory help at reasonable prices. This could no doubt be overcome by making arrangements in advance for securing help for the picking season from the larger towns and cities.

All the firms whom we interviewed both in Vancouver and Victoria united in stating that the only reason they preferred the fruit from the south was because they could usually rely upon the quality and grade of the pack. Other things being equal, they would give the home-grown fruit the preference every time and believed that just as soon as the British Columbia growers complied with the conditions they would be able to control the market and in a very short time very little fruit would be imported into the province.

In regard to the high prices prevailing in the West for fruit of all kinds, Mr. Maxwell Smith, Editor of the Fruit Magazine, is of the opinion that this will correct itself as the production increases. At the present time there is a tendency to send the best pack to the prairies, and dispose of the indifferent pack in the local market. With the increased planting that has taken place and the better methods that are being adopted, it is only a question of time when this difficulty should be overcome.

Mr. Smith is opposed to the consigning of fruit to the commission market, and considers that as far as possible it should be disposed of on an f.o.b. basis, a system which is rapidly being adopted by the co-operative societies.

Australian Shipments.

An effort has been made to open up a trade in British Columbia fruit with Australia, and Messrs. Robertson, Morris & Co., as well as Messrs. Stirling and Pitcairn, have already forwarded a number of cars, chiefly Winesap, Jonathan, Canada Baldwin and Canada Red, with very fair results. The apple that is required for this trade is one that is medium sized, but must be well coloured, a 4½ tier pack of about 150 to 175 apples to the box being the size most in demand. Given suitable fruit, which seems at present somewhat difficult to obtain, there is an opening to develop an important trade with Australian ports.

Up to the present very few Ontario grapes have been sold in Vancouver, and the wholesale trade is of the opinion that if the grapes can be landed in good condition a considerable market would be found for some of the better varieties at profitable prices.

Rigid Inspection.

A visit was paid to the office of Mr. Thomas Cunningham, who has been employed for a number of years by the Provincial Government as chief inspector of noxious insects and fruit pests of various kinds. He has a large staff in his Department and has been very active in protecting British Columbia from the importation of insects and diseases. His work has been remarkably successful and he believes that he has not only prevented the spread of codling moth, but also eradicated it where it had obtained a slight foothold by means of imported fruit being brought into the province. Fruit or nursery stock that is found to be in any way affected with any of the ordinary pests is not allowed to be distributed in the province. Wherever there is evidence of infestation, the shipment is either destroyed or returned at once to the place whence it came. By the enforcement of these rigid measures the Department hopes to maintain freedom from many pests which have caused serious injury in other fruit centres.

Provincial Government Interested.

Leaving Vancouver by steamer, the city of Victoria was reached after a delightful sail and here we were met by Mr. W. E. Scott, Deputy Minister of Agriculture, and Mr. R. M. Winslow, Provincial Horticulturist. These two gentlemen are taking a deep interest in the progress and success of fruitgrowing

throughout the province, and are seeking in every possible way to disseminate information and direct the intending orchardist so that he may avoid mistakes which are likely to be made in a comparatively new country and profit by the experience of those who have become successful.

A number of demonstration orchards have been established in different districts, and during the past year eighty acres of trees have been set out for this purpose. Educated and trained men are being stationed at strategic points whose duties will be to give every assistance in their power in the way of advice and direction as to the varieties best adapted to the different districts, and the most successful way in which to handle the orchards. Packing schools are being inaugurated during the winter months, and are largely attended.

One of the difficulties that has been encountered so far has been that a large number of inexperienced men have been led to purchase fruit ranches on the strength of the large profits which have been obtained in individual cases by men who have been particularly successful. The growing of fruit, like any other business, can only succeed when followed up with rigid and well-directed effort and it is a serious mistake, even in British Columbia, to think that large profits can be obtained without the exercise of industry and close application. The Department of Agriculture is fully seized with this fact and is doing all it possibly can to assist the in-coming settler to secure a satisfactory location.

Care in Location Necessary.

Owing to the variety of climate obtaining in this province on account of altitude and geographical location, it is necessary to study the peculiar conditions in any given locality, in order that the varieties of fruit which succeed best may be ascertained and recommended. This work is being carried out very carefully by the Provincial Horticulturist and should prove extremely valuable to those contemplating making their home in this province.

The department is also paying considerable attention to disseminating information as to the best markets available for British Columbia fruit, and for several years has maintained a commissioner, whose duty has been to watch the markets and to furnish direct information to the different co-operative organizations and shippers as to the trade conditions, more especially in the prairie provinces. An extension of this idea, in which all the fruitgrowing provinces might join, would work out to their mutual benefit.

Ideal Conditions for Small Fruits.

There is a considerable territory surrounding the city of Victoria and in various other parts of the Island of Vancouver, that is ideal for the production of small fruits and cherries. There is also an excellent local market that will readily absorb all that can be produced for years to come. This line of fruitgrowing offers great attractions, and should be carefully investigated by those who are looking for an opportunity to establish themselves in a profitable business.

The quality and colour of the apples grown here are not as good as of those produced in the interior, but pears and plums of some varieties do very well.

Mr. Brydon's Orchard.

Through the courtesy of the provincial government, a somewhat extended tour of the southern portion of the Island was made by motor. In this we were joined by Mr. Thos. A. Brydon, whose home orchard was visited. This property consists of about twenty acres, planted with apple, plum, pear and cherry trees and has been carefully handled, Mr. Brydon paying particular attention to spraying and thorough cultivation. He believes that the Baldwin, King, Wealthy

and Gravenstein can be grown successfully, and he has also planted several other varieties in an experimental way. Italian prune, Columbia and Pond Seedling plums are satisfactory and profitable. Bartlett and Bosc pears, Lord Duncan and the Lagasse Morello cherries are both good sorts. Mr. Bryden has no doubt one of the best, if not the best orchard in this portion of British Columbia.

During the course of our ride many small orchards were observed which showed considerable lack of care and attention with the consequent results. It would seem that the growing of fruit trees in a practical and commercial way at the present time in this part of the Kootenay is confined to comparatively few persons and should admit of considerable extension.

GRAND FORKS.

We arrived at Grand Forks, in the Kootenay district, on December 1. In company with Mr. J. D. Honsberger and Charles Lawrence, a drive was taken through some of the principal orchards located here, some of them of sufficient age to prove that the conditions here are very favourable and justify the large planting that has taken place within recent years. The fruit output is now assuming considerable proportions, some forty or fifty cars having been sent out during the past season. This will be largely increased in the near future by shipments from the younger orchards which have not as yet come into bearing.

The favourite apples here are Wealthy, McIntosh Red, Jonathan, Wagener and Northern Spy. Winesap, Delicious and Red Checked Pippin are also being planted but are not as yet proven.

DOUKHOBORS AS FRUITGROWERS.

There are quite a number of experienced men who have selected this section as being one of the most promising in British Columbia for fruitgrowing. Large settlements of Doukhobors have taken considerable holdings and are laying the foundations for extensive orcharding in the near future, having already planted several hundred acres. These people being frugal and industrious and quick to adapt themselves to new conditions, are likely to be successful in their undertaking. They have established a canning factory which will take care of surplus fruit for some time to come. There is also a considerable local market, and the facilities for long-distance shipments are very good, from the fact that more than three railways pass through this section.

In conversation with one of the leading fruitgrowers, a practical man with no land for sale, this gentleman stated that a net profit of ten per cent could be shown at present in this section, under good management, on land valued at several hundred dollars per acre, allowing a sinking fund of ten per cent per annum for exhaustion. A fine orchard of Italian prunes, about eight acres in extent, adjoining the city, has produced during the last seven years an average of three thousand dollars per acre.

SNOWDALE AND ELI

Between Grand Forks and Nelson some very extensive orchards were observed, but there is still a large territory undeveloped. At Nelson considerable progress has been made in opening up the different ranches located on the Kootenay Lakes. Here we visited the orchards of James Johnson and J. J. Campbell, on the latter property during the last few years Mr. Campbell has developed a large area of land from virgin soil which required clearing from the forest, and he now has a fine lot of fruit trees of all kinds well started, and beginning to produce comparatively large crops. Mr. Campbell contends that there is absolutely

[illegible] from them for the future.

Mr. R. T. Hickes of the Kootenay Fruit Union has established a warehouse at Nelson and arrangements are being made to handle the crop to best advantage. At present the local market takes all the supplies at good prices but it is only a question of a short time when outside markets will have to be sought for increased production.

Between Kootenay Landing and Fernie on the Crow's Nest Pass route, several areas of land are disclosed that are suitable for fruitgrowing, some development having already taken place at Creston and Cranbrook. These districts are quite new, but indications are favourable that important fruit interests are likely to be established here in the near future.

At Lake Windermere on the Columbia, about sixty miles north of Cranbrook, is a considerable territory that is now being opened up with a view to extending the fruit area, which promises to be favourable for the hardier fruits, and where small fruits should do well.

Newer Fruit Areas.

In addition, there are other districts further north which are now being investigated, detailed information regarding which may be obtained from the British Columbia Government by anyone interested in looking into their possibilities.

While fruitgrowing is comparatively young in British Columbia and many problems are still awaiting solution, yet enough data of a reliable character has been secured to justify the confidence of the people in the future of the industry. Although at the present time not enough fruit is being produced for the local demand, there is no section of the Dominion where so much activity in orchard planting is taking place. It will not be many years before British Columbia fruit will be offered in immense quantities, and will exercise a marked influence on the trade in the markets of Canada as well as in those of more distant countries.

OREGON, WASHINGTON AND NEW YORK STATES.

During recent years fruit from the States of Oregon and Washington has attracted public attention to a considerable extent. This is no doubt largely due to the very rapid development of the fruit industry which has taken place in these States, and the very great care and attention which have been devoted to producing fruit of extra good quality, and to grading, packing and shipping it [illegible] manner through the various co-operative organizations which have been established at the more important centres. The city of Seattle is the port from which is shipped the larger portion of the fruit which reaches British Columbia markets. This city is well in easy reach of many of the more important fruit-producing sections of the two States, and has excellent water communication with British Columbia ports. Consequently a very large trade has been developed by this route.

A short distance south of Seattle a very important centre of the berry industry is found in the adjoining towns of Puyallup and Sumner. One of the strongest and most perfectly organized co-operative associations in the west, known as the Puyallup and Sumner Fruitgrowers' Association has been established here, under the management of Senator W. H. Paulhamus, a gentleman of wide experience and extraordinary executive ability. There are over eight hundred members in this association, while the capital stock of the company is less than two thousand dollars, in shares of one dollar. During the year 1911 nearly

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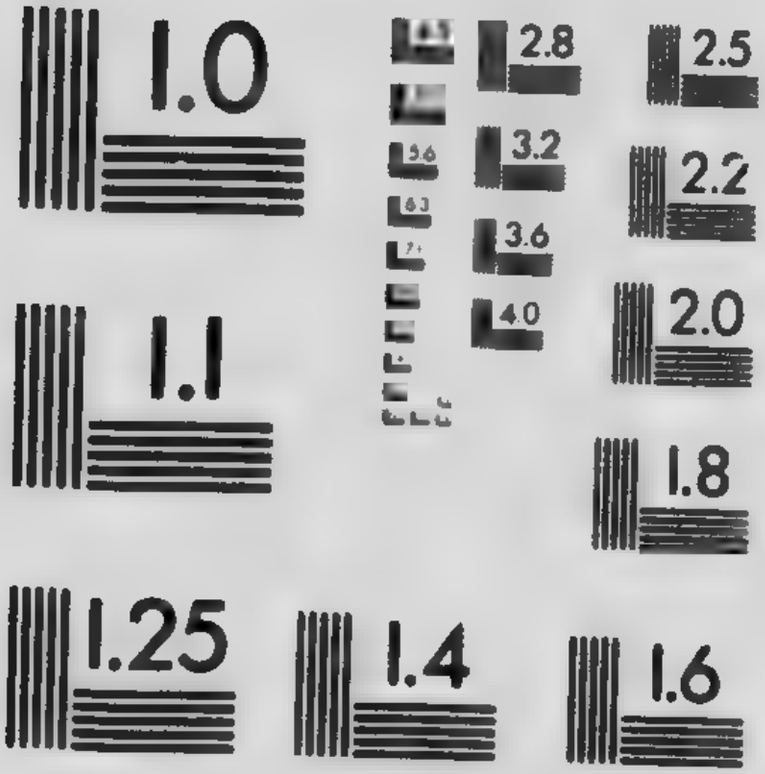

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half a million dollars worth of business was transacted. The annual statement shows a surplus of assets of over $25,000. No member is allowed more than 15 shares, and all members are allowed one vote and no more. No dividends are paid on the stock, profits being pro-rated in accordance with the quantity of fruit delivered to the company. A large canning factory has been established for the purpose of taking care of any fruit that may not be suitable for shipping or which might meet a glutted market. As the berries are delivered at the warehouse they are graded as to their suitability for long or medium distance shipment, or canning factory purposes. Very many cars of red raspberries and blackberries are shipped to a variety of points in the middle west and even as far east as the city of Winnipeg. A very considerable demand has also been created for both red raspberries and blackberries put up in gallon cans. No difficulty has been experienced in securing help, as the district is situated between the two large cities of Seattle and Tacoma, and during the picking season large numbers go out to the berry fields for an outing, and at the same time to secure profitable work.

The berry industry has grown from very small and insignificant proportions until it has become the chief occupation of the people. The company above referred to has had a varied experience, but is now firmly established and is an outstanding example of what can be accomplished by united effort under competent management.

On the grounds of the Western Washington Experiment Station at Puyallup, the Bing, Black Republican and Royal Anne cherries are proving profitable. Mr. John A. Stahl, the horticulturist, considers the small fruit industry the most satisfactory for the section. The Evergreen blackberry, of local origin, bears extraordinary crops, nine and ten hundred crates per acre having been produced on occasion. This berry is similar to the dewberry in growth and habit, and requires to be trained upon trellises. When properly looked after it is very profitable, and a large acreage is devoted to its culture. This berry is well worthy of a trial by Canadian growers in sections where the blackberry is hardy and successful.

At the city of Portland Mr. H. M. Williamson, Secretary of the State Board of Horticulture, supplied us with considerable information regarding the history of fruitgrowing in the State of Oregon. About 1853 a few boxes of apples were produced and sold at the extraordinary price of $1.50 to $2 per pound. For some years thereafter they were worth as high as $50 to $75 a bushel. These prices induced a very large planting, so that about 1865 a very considerable supply was available with very few people to consume it, there being no railroads by which the fruit could be shipped to outside points. In consequence orchards began to be neglected and became infested with the apple scab and codling moth, and the fruit became practically worthless. During recent years, however, attention has again turned to the renovation of these old orchards and the extensive planting of new ones, so that in 1910, from the district of Hood River alone, something like 500,000 boxes were shipped to outside points.

This district and other valleys in Oregon and Washington, owe their distinction largely to the fact, that those engaged in the cultivation of fruit, early recognized the necessity for and the value of establishing a reputation for their product by exercising the utmost care in every detail of their business.

A very important organization, known as the Northwest Fruit Exchange, has its headquarters at Portland. This concern has been organized for the purpose of effecting an even distribution of the fruit produced in the States of Washington and Oregon. Last season, although the first since the company was organized, 700 cars of fruit were distributed in 125 markets. A moderate charge per box is made for handling and distributing, and the company believes that its policy will net the grower from 25 to 50 cents a box more than he would get by handling his own goods. Mr. W. F. Gwin, General Manager, has had a wide experience in the wholesale fruit trade, and is very sanguine that, with

the cordial support of the local organizations, the company will be able to market satisfactorily all the fruit that can be produced for years to come.

This company does not believe in the auction sale of apples but is satisfied that with standard grading and careful handling it will be able to establish confidence in the product and secure f.o.b. orders for all that can be supplied. An outstanding feature of their business is the promptness with which settlements have been effected and net returns placed in the hands of the growers. One of the difficulties in connection with co-operative selling in some sections is the delay which has frequently resulted in making settlements to the growers for their shipments, thus causing more or less dissatisfaction. These delays arise largely from lack of system on the part of the manager or insufficient office help in connection with the company. When the membership consists of a large number of growers whose individual output is comparatively small and who naturally look for prompt returns, a failure to secure this causes discontent and dissatisfaction, especially where some competitive dealer makes it a point to effect a quick settlement with independent shippers, and in this way injures the co-operative association.

The further operations of this company should be carefully watched by Canadian interests, in order that advantage may be taken of their experience in organized co-operative selling.

At the town of Hood River, so favourably known for its extensive shipments of strawberries and fancy Spitzenberg and Yellow Newtown apples, several of the important orchards were inspected. It would be hard to find a district where greater care has been bestowed upon the orchards than throughout this valley. Large areas are to be seen where every tree is the exact counterpart of the other, the greatest attention having been paid to the pruning and shaping of the trees, in order that they might be sturdy and symmetrical and capable of bearing the heavy loads of fruit which are so common in this locality. Although not more than twenty per cent of the plantings have reached the bearing age, nearly 100,000 boxes were handled in 1910 by the Hood River Fruitgrowers' Union alone. This company has a very extensive warehouse on the main line of the Oregon Railroad and Navigation Company, to which is attached a cold storage department maintained by a 70 ton compresser. This warehouse has a large capacity and contained in November, 1911, fifty thousand boxes of apples awaiting shipment. Mr. C. H. Sproat, the manager, stated that, while there was a sprinkling of other varieties grown in the valley, Hood River based its reputation on the excellence of three varieties of apples: Yellow Newtown, Spitzenberg and Ortley, which are probably grown there to as great perfection as any place on the continent.

The first carload of apples was sent out from this station in the year 1900 and sold to a New York house at $1 per box, but on account of their fine appearance were resold in the city of New York for $5 per box. In regard to over-production, Mr. Sproat instanced the fact that he had at the present time orders on the company's books which he was not able to fill, at prices up to $2 per box f.o.b. Hood River.

A visit to one of the packing houses was a revelation as to the possibilities of becoming expert in the packing of apples in boxes through continued practice. To the amateur box packing seems a very difficult and obscure operation. Well defined systems and methods have, however, been carefully worked out and many of the packers have become so competent that the work is done almost automatically and with great ease.

Reference may be made here of the very complete and exhaustive bulletin on this subject, by Mr. A. McNeill, Chief of the Fruit Division, which may be secured on application to the Department of Agriculture at Ottawa. Packing schools have also been established in many parts of British Columbia and at the Ontario Agricultural College and Macdonald College in Quebec during the winter season. In this way instruction is being given by experts which

It is hoped will result in box packing becoming as popular in Ontario and Eastern Canada as it is now in the West.

Fall spraying seems to be the rule here, and the majority of the orchards had already, November 20th, been treated with lime and sulphur spray. From present appearances a very considerable extension in the facilities for handling the output from this valley will be necessary in the very near future.

Conditions were somewhat different in the Wenatchee Valley, situated in the State of Washington on the Columbia River. While at Hood River irrigation has not been found to be essential, a conservation of the winter rainfall being usually found sufficient, at Wenatchee irrigation is practiced and found very useful. The favourite varieties of fruit are also slightly different, those most popular in the Wenatchee Valley being Jonathan, Rome Beauty, Black Twig, Winesap and Delicious.

The same thorough methods have been made use of here as are followed at Hood River, and there is no doubt that if the same methods are generally adopted in British Columbia and in the Central and Eastern Provinces of Canada, equally satisfactory results will be obtained. Owing to the fact that the production of apples is the chief business of the people in these valleys, every known means is made use of and the most determined effort is put forth to secure a crop of fancy fruit. Careful pruning, thorough spraying, liberal fertilizing and systematic thinning of the fruit are practiced. Culls and inferior fruit are removed from the trees in the early part of the season and as far as possible only fancy fruit is permitted to mature. This practice, if generally adopted by Canadian fruitgrowers, would, I think, work a revolution in the apple industry of this country.

The National Apple Show was in progress at Spokane during the week of November 23-30. The most outstanding feature of this exhibition, apart from the magnificent display of fruit, was the wonderful enthusiasm and interest displayed, not only by the growers and exhibitors at the exhibition, but by the entire business community in the city. For the time being everything gave way to a thorough entering into the spirit of the occasion. A daily round of amusements and entertainments was provided during the entire week, and people laid aside their business engagements to a large extent to devote themselves to the laudable work of emphasizing the importance of the apple industry. Large sums of money were expended in the erection of temporary buildings, and for installing the exhibits which were displayed in abundance. Nearly every shop window in the city was decorated with beautiful displays of apples, the hotels everywhere were festooned with the product of the orchard, and everything went to show that for the time being King Apple had the right of way.

A considerable number of exhibits from the Province of British Columbia were to be seen, for which a large number of first prizes were received in competition with the American fruit.

These National Apple Shows, which originated at Spokane four years ago, and which have been continued each year, have done a great deal to draw publi attention to the value and importance of the apple industry of the Western States. Pe in no other way could this publicity have been obtained so well and at such comparatively small cost.

British Columbia fruitgrowers were not tardy in recognizing this fact, and not content with availing themselves of the opportunity of competing with their neighbours in friendly and successful rivalry on their own ground, they decided in 1910 to hold an exhibition in Vancouver on their own account, open to the world. The success of this great exhibition under the able management of Mr. Maxwell Smith is now a matter of history. It was without doubt the largest and most important distinctive apple show ever held, and demonstrated fully the potentialities of the fruit areas of British Columbia, one single carload of Jonathan apples from the city of Kelowna being conceded by the best authority

on the [illegible] atment to be without a rival, both as regards [illegible]
perfe[illegible]n pack[illegible]

[illegible]g the month of October a few days were spent in the State of N[illegible]
York [illegible]ng the south shore of Lake Ontario, where is to [illegible]
more important fruit-producing sections of this State. For [illegible]
counties in this section have been noted for the production of the Ba[illegible]
Greening, King of Tompkins and other standard winter varieties [illegible]
of which the output has assumed extremely large proportions.

Wayne County is probably the centre of this district and has [illegible]
borders some of the more prominent and aggressive fruitgrowers of [illegible]
During the season of 1911 an extraordinary crop of apples was [illegible]
this territory.

The orchard of Mr. B. J. Case is important from the fact that for [illegible]
years systematic thinning of the fruit has been practiced and as a result [illegible]
paratively regular annual crops have been produced. This practice, comb[illegible]
with the liberal application of fertilizers and very careful attention to the thorong
spraying of the trees, produced this year one of the finest crops of apples w[illegible]
we have seen in the course of our itinerary. It has been practically demon-
strated on this farm that, by judicious thinning it is quite possible to ca[illegible]
the Baldwin and other varieties to bear annual crops in reasonable quantities.
This theory is also borne out by the testimony of others who have experiment[illegible]
to a greater or less extent with this object in view. If this practice is follow[illegible]
in Canadian orchards, the results I am satisfied will be equally successful.

A feature of this district is the tendency to plant on the roadsides contin[illegible]
rows of the Ben Davis apple tree and in locations of this kind it seems to attai[illegible]
a perfection of size and colour. Another outstanding feature which is uniq[illegible]
is the large number of evaporating plants located in this county, one o[illegible] almost
every large farm, where all fallen or over-ripe apples are quickly cha[illegible]
a non-perishable evaporated product which finds a ready market at fair prices.
This custom is important from the fact that it eliminates to a large extent [illegible]
temptation to include amongst the apples intended for shipment in the fres[illegible]
state any fruit of an unsatisfactory character.

In many directions Canadian fruitgrowers are quite the equal of [illegible]
American neighbours, and in some particulars perhaps in advance of them.
It is, however, quite possible to profit by the experience of these sections of the
United States where fruit has been produced on a large scale and where com-
petition has been so keen that it has been necessary to employ the very best
men—from a scientific and practical standpoint—to solve many of the problems
which have presented themselves. By means of the researches of these [illegible]
very great progress has been made in acquiring knowledge of those practices
which make for success.

On account of the wider field, some of our brightest men have been draw[illegible]
to cast in their lot with American horticulturists. Canada cannot afford [illegible]
allow this condition to continue, as there is ample scope in this country for [illegible]
energies of our most ambitious and energetic young men. Public opinion shou[illegible]
be so moulded and influenced that there would be created a still greater feelin[illegible]
of pride and confidence in the future of Canada, which would re-act and [illegible]
means of bringing into this country, to engage in fruit culture, many from the
south, in the same way that the western prairies are drawing the American gr[illegible]
grower to embrace the opportunities presented to him in our own great North-
west.

From the Atlantic shore to the Pacific ocean there are numberless oppor-
tunities in Canada to undertake the cultivation and production of fruit on
advanced lines of work, which will furnish ample scope for the activities of m[illegible]
thousands of the brightest young men which this country can produce, or who
may be induced to come in and locate in some one of the many splendid sections
of fruit land described in this Report.

REPLY TO CIRCULAR LETTER OF ENQUIRY.

In order to more fully cover the scope of this enquiry, a circular letter was sent out to several hundred representative men in various fruitgrowing sections of the Dominion, embodying a list of questions, the text of which is herewith appended.

The replies to this letter were very numerous and contained a great deal of matter of intense interest, the publication of which in full would be desirable did space permit. As there was, however, an almost unanimous consensus of agreement on several of the more important questions, a general summary of the replies must suffice, with the addition of a detailed reply from one of the most careful, conservative fruitgrowers of the Province of Ontario and one each from Nova Scotia and British Columbia, whose names are withheld for obvious reasons.

INTERROGATORY OF FRUIT INDUSTRY.

1. What percentage of land in your locality suitable for fruit growing, is at present not being utilized for that purpose?
2. What is its average value per acre?
3. How many acres have you devoted to the growing of fruit and what is your estimate of its value per acre?
4. Is this valuation greater than it was ten years ago?
5. To what cause do you attribute the increase, if any, in valuation?
6. What is the approximate annual revenue from your fruit land?
7. How does this compare, acre for acre, with the revenue from other branches of farming?
8. How is your fruit marketed—in baskets, barrels or boxes?
9. Are your present facilities for marketing satisfactory?
10. If not, what improvements would you suggest?
11. What are the chief difficulties encountered by fruit growers in your section—as to insects, diseases, climatic conditions.
12. What varieties are you growing successfully on your farm—of apples, pears, plums, peaches, grapes, cherries, small fruits?
13. Which of these varieties do you consider valuable commercially?
14. What system of orchard cultivation do you practice?
15. Is there any decided movement on foot in your section towards an expansion in fruit growing?
16. Is such an expansion in any way likely, in your opinion, to cause an over production of fruit?

REPLIES TO QUESTIONS.

Ontario.

1. 75 to 80 per cent.

2. $100 to $300 per acre according to situation. About $100 for large farms a few miles from Burlington, and back from the lake. $300 for smaller farms near the village and not far from the lake, suitable for vegetables and small fruits.

3. 30 acres—25 acres bearing, value 350 to 400 dollars per acre.

4. About 50 per cent greater.

5. To better care of fruit plantations, to co-operation, to a wider knowledge of markets, both home and foreign, and to the development of the business faculty of the grower who aims to secure the highest possible price for his products, while striving to reduce the cost of production to that minimum consistent with quality and quantity. Further, the country is beginning to be seized with our

natural advantages for producing fruit of high quality. This dawning intelligence is also spreading to foreign countries.

6. Seventy-five to one hundred dollars per acre, gross revenue, that is money in hand at home; one variety of fruit with another, and one year with another.

7. Perhaps one hundred per cent higher but comparison is difficult [illegible] of producing fruit is probably double per acre, that of grain, dairy, hog or beef farming, or breeding. Speaking in very general terms, I think that there is perhaps at present a margin of at least 25 per cent higher in growing fruits than in any of the lines mentioned above.

8. Small fruits, small tree fruits, and grapes in baskets, pears and apples in baskets, boxes and barrels.

9. Fairly so. As fruit becomes more plentiful, the facilities improve. For example, two or three dealers buy fruit daily at Burlington Junction during the season. We can sell direct to them or send to a commission house as we desire. A few years ago we had to consign all our small fruits to city houses. This competition is to our advantage and to the advantage of the general consumer as well, owing to better distribution.

10. We still think that express rates are too high, i.e. higher than the value of the service rendered, and we are also of the opinion that transportation to the West might be reduced to the advantage of all concerned.

11. Insects—codling moth, lesser apple worm, currant worm, raspberry slug, curculio. Diseases—apple and pear scab, black knot, pear blight. Climatic conditions favourable to the standard varieties of fruits grown here. Non-hardy sorts we do not try to grow. Strawberries are the better for winter protection.

12. Apples—Duchess, Wealthy, Ribston, Blenheim, King, Baldwin, Spy, Greening, Wagener, Ontario. Pears—Wilder, Clapp, Bartlett, Boussock, Goodall, Louise, Duchess, Dwarf, Anjou, Sheldon, Keiffer, Lawrence, Nelis, Josephine. Plums—Bradshaw, Niagara, Imperial Gage, Lombard, Yellow Gage, Prince of Wales, Glass, Reine—Claude, Columbia, Staunton, Shipper's Pride, Gueii. Peaches—Alexander, Early Crawford, Champion, Crosby, Steven's Rareripe, Longhurst, Sneed, Triumph, Grapes. Red—Moyer, Lindley, Massasoit, Delaware, Vergennes, Brighton, Wyoming Red, Black—Campbell's Early, Moore's Early, Worden, Concord, Wilder, White—Niagara, Moore's Diamond. Cherries—May Duke, Richmond, Dychouse, Windsor, Montmorency, Morello. Have mostly gone out of small fruits. Have grown the following successfully: Currants, Red—Cherry, Fay, North Star, Prince Albert, Victoria, Wilder. Black—Collins Prolific, Lee, Naples, Saunders, Champion, Victoria, White—Grape and Imperial. Blackberries—Snyder, Agawam, Western Triumph, Ancient Briton (the latter partially self-sterile in my opinion). Raspberries, Red—Marlboro, Herbert, Cuthbert. Black—Smith's Giant, Kansas, Older, Hilborn. Purple—Columbian, Shaffer. Gooseberries—Pearl, Downing, Red Jacket. Strawberries—(None of my own, give experience of neighbours). Bederwood, Senator Dunlop, Williams, Gibson, Glen Mary, Leader and others.

13. All in the above lists. I have eliminated those I consider undesirable. I have grown many more varieties than those mentioned.

14. Clean cultivation and manuring as far as I find practicable.

15. Yes, along all lines, except plums. Fifteen years ago you may remember the country was in a state of depression, and fruits sold so low as to give a very narrow margin of profit indeed: we were so to speak in the trough of the sea, now we are perhaps on the crest of the wave of prosperity. Cycle follows cycle, action, re-action. During the re-action there is no doubt over production from the growers' standpoint, prices low, everybody can buy fruit, the consuming area is enlarged, the desire for fruit is gratified, the habit of eating fruit and more fruit is formed and prices begin slowly to advance. Good times again strike the country, and prices of fruit are strong, partly due to sympathy with the general prosperity

and partly to the water consuming demand created di[illegible] the depressed era. Owing to the situation of our country geographically, a m[illegible]gate[illegible] rift on fruits, gives a greater stability, and a better equilibrium to the industr[illegible] thus encouraging people to develop a rich natural resource.

Burlington, Dec. 22nd, 1911.

BRITISH COLUMBIA

1. 80 per cent.

2. $150.

3. Approximately 5,000 acres. From $350 per acre just planted to $2,000 in full bearing—say average $600 per acre.

4. Yes.

5. More complete realization of the possibilities of profit in the fruit industry as deduced from results actually obtained.

6. About $200 per acre of net annual average profit on full bearing orchard (this varies very much).

7. Greatly in excess of profit to be derived from any other branch of farming except truck farming.

8. All apples and pears, in boxes only, soft fruits in baskets and crates.

9. Increased transportation facilities will be required to handle the rapidly increasing crop. Great difficulty experienced in getting cars when wanted. C. P. R. Co. also think any dirty car good enough.

10. Answered above.

11. Bitter pit. We have no pests which cannot easily be controlled by spraying.

12. Apples—McIntosh Red, Jonathan, Northern Spy, Yellow Newtown, Wealthy, Spitzenberg. Crabapples—Florence, Transcendent. Pears—Bartlett, Anjou, Boussock, Flemish Beauty, Clairgeau. Plums—Peach, Bradshaw, Black Diamond, Grand Duke, Abundance, Tragedy Prune, Italian Prune, Engleberg, Ponds Seedling. Cherries—Olivette, English Morello, Black Tartarian, Black Republican, Royal Anne, Bing, Lambert, Windsor.

13. All.

14. Clean cultivation.

15. Yes. 10,000 acres of irrigated land will be put on the market this year in 10 and 20 acre blocks.

16. N[illegible]

The [illegible] Land and Orchard Co. have 200 acres in orchard. Last year there [illegible] out 50 tons of fruit, the year before about 75. Last year was of course [illegible] year. This orchard is just coming into bearing and we are lookin[illegible] good crop this year. We are planting out more trees every year. I should think there were about 1,500 tons of fruit shipped out of here this year. Last year there was a good deal more.

Re Bankhead Orchard.

The following are the gross returns for a number of years—

1903	$ 5,846
1904	4,220
1905	5,913
1906	6,211
1907	5,340
1908	6,286
1909	4,919
1910	11,784
1911	9,000 (about)

Intensive Apple culture in British Columbia. Note the uniformity of this Orchard at Kelowna.

Part of Prairie Valley, Summerland, B.C

[illegible] an acre of Flemish Beauty pears planted [illegible] 902 produced as follows:

1906	[illegible]
1907	6,539 [illegible]
1908	10,520 [illegible]

1 1-3 acres of Beurre D'Anjou pears [illegible]

1905	34,000 [illegible]
190[illegible]	58,555 lbs.
1907	41,651 lbs
1908	38,016 lbs
1909	21,075 [illegible]

These figures are quite accurate and reliable.

Kelowna, Jan. 27th, 1912.

Nova Scotia

1. 90 per cent.

2. Unimproved $20—improved $40 to $200. All depends on distance from railway station.

3. 100 acres all the way from $100 to $500 depending mainly on age of trees.

4. Nearly double.

5. Shipping facilities to Europe.

6. I have 1 1-4 acre orchard which gave this year 236 barrels No. 1 and 2 marketable apples. It is 11 years old. $200 per acre is a fair average of orchard well kept.

7. No comparison is possible. For from 8 to 10 years an orchard gives nothing, but after that it is very profitable.

8. Barrels—Have abandoned boxes after thorough trial of them.

9. Yes, on the whole.

10. A small reduction in ocean freight—say 10 to [illegible]

11. We have occasional pests, but as a rule we get through. We fear no pests among those now known except the Green Aphis.

12. Apples only. McIntosh, Fallowater, Blenheim, Golden Russet, Baldwin and King. I have 1,000 Cox's Orange growing finely but not yet in bearing.

13. All of them.

14. Have settled on vetch as a cover crop, with this and a generous supply of commercial fertilizer and light dressing of barnyard manure.

15. Yes, decidedly.

16. No. If winter varieties are planted. Soft fruit is now overdone.

Middleton, December 15th, 1911.

Condensed Resumé.

1. The majority of replies in regard to No. 1 agree that not more than from 10 to 20 per cent of the land in any given section available for and adapted to fruitgrowing, is at present being devoted to this purpose.

2. The value of land available which amounts to many thousands of acres in all the fruitgrowing provinces, ranges in price from $10 to $250 according to location, improvements and available markets.

3. Varying from small holdings of 10 acres to an extensive orchard of 200 to 300 acres. Values running anywhere from $100 per acre to $1,000 and over, again according to location and proximity to market and based on revenue producing power.

4. Yes, in every case.

5. Improved facilities, greater knowledge, general development, greater demand, increased net returns.

6. Ranging from $50 to $1,000 per acre.

7. In almost every case very much greater.

8. In Eastern Provinces baskets and barrels. In Ontario, baskets, crates, boxes and barrels. In British Columbia, crates and boxes.

9. Generally find transportation defective. Rates are high and in many cases excessive, with equipment unsatisfactory.

10. Co-operative organization to secure more satisfactory conditions.

11. Insect pests and fungous diseases are generally prevalent in the East, but may be controlled by efficient spraying. The fruit pit in the West is causing some anxiety at the present time as its origin is somewhat obscure and control as yet difficult. Peach Yellows, Little Peach, Black Knot and Pear Blight must be at once removed wherever discovered in an orchard. Climatic conditions occasionally severe in certain localities and their effects must be taken into consideration.

12. This question has already been answered in detail in various parts of the Report and covers a wide range and varies with the locality.

13. Practically answered in No. 12.

14. Clean cultivation in early months of the spring and summer, followed by cover crops during the latter part of the season is now generally being adopted. In some localities on account of the severity of the winter, sod culture with heavy mulching is practiced, and in some cases sheep pastured in the established orchards. Growing of hay and the small grains in an orchard universally condemned.

15. With few exceptions there is at present a widespread interest in improved methods of orchard practice and an extensive planting of trees and plants of nearly all kinds of fruit is being made, which will in the near future have a marked influence on the output and general market conditions.

16. No fear is expressed as to an over-production of fancy high class fruit. There is at present a large surplus of the other kind.

NOTES ON ORCHARD MANAGEMENT.

A few brief notes on some of the essential factors of successful orchard management may not be out of place.

Production of Fruit.

Since the commencement of commercial fruitgrowing in Canada, there has been a very marked improvement in the quality, size and flavour of the product. This gradual evolution, while to a large extent due to the introduction of new and more desirable varieties of fruit, may also be safely attributed to an important change in the methods of orcharding.

From the time when spraying was considered a waste of time, when cultivation consisted in drawing the branches of trees over the soil, when scientific pruning was practically unknown, until to-day, when up-to-date orchardists successfully cope with a very large percentage of the insects and diseases with which they have to contend, when modern farm machinery may be utilized for all tillage operations, and when careful pruning is recognized as one of the essential practices in the production of No. 1 fruit, there has been an endless and inestimably valuable amount of research work done along all lines of orchard management. As a result of this, fruitgrowing has to-day taken its rightful place as one of the most important phases of the agricultural development of the people.

The following pages will be devoted to a consideration of some of the chief requisites in the establishment of a successful orchard.

Selection of Site.

In order that an orchard may thrive and bring satisfactory returns, it is essential that the grower should consider its location of primary importance, and therefore that he should take into consideration those factors which are relative to the selection of a suitable site.

Perhaps the first factor that should be given attention is that dependent upon the variety or varieties of fruit which are to be grown. An immense amount of experimental work has been carried on, not only by the Experimental Farms and similar institutions, but by many individual growers, to ascertain the classes and varieties of fruits suitable for different sections of the country. Much information along this line may be obtained from the bulletins of the Federal and Provincial Governments, and in various portions of this work general lists of the best commercial varieties for the principal fruitgrowing areas of Canada will be found. These lists are based largely upon the personal observations of the writer during the past summer, supplemented by the experience of representative men throughout the different provinces.

As sloping land is usually better drained than level land, the site should be so located as to secure this advantage if possible, although it is not entirely necessary, thorough underdraining being advised as extremely desirable under almost all conditions. Whether the slope should have a northern or a southern exposure has long been a debatable question. Trees on a southern or a south-western slope are naturally more liable to sunscald, while an orchard located on a northern or eastern slope, will run considerable risk of injury from root-killing, in sections where the winters are severe. Generally speaking, it is perhaps better to have the site on a northern or eastern slope, and to obviate danger from winter killing by the growth of cover crops or the use of some other form of mulch.

Owing to the great variety of soils which are to be found even in a limited locality, the question of suitability of soil for the purpose intended, should be given careful attention. It often happens that when this factor is lost sight of, a mistake will have been made at the outset that will make all the difference between success and failure. Many soils, from their nature, are quite beyond successful improvement and should be avoided, but there are also types, apparently of little value, which can by proper drainage, careful methods of cultivation and fertilizing, or the artificial supplying of the requisite moisture, be brought into a state of high fertility and productiveness. Canada is fortunate, however, in having large areas of land particularly well suited by nature for the production of fruit, available in all the provinces where fruitgrowing is being carried on.

Climatic conditions, on the other hand, are quite beyond the control of the grower, being largely dependent upon altitude and latitude, proximity to water, thermometric extremes, and so forth, and while some useful data in this connection may be obtained from official reports, it is safer to be guided by the experience of neighbouring growers, and careful enquiry should always be made from disinterested parties regarding the suitability of any particular district in this respect, especially with reference to those newer sections of the country which are being opened up and exploited in the interest of the fruit industry, or sometimes that of the real estate man.

The above mentioned factors have been said, and truly so, to be essential, for if the orchard is given proper care, they are the principal ones which affect its successful growth and subsequent production of crops of fruit; at the same time, if the grower intends to produce fruit on a commercial scale, there is one more important feature to be considered in choosing an orchard site, namely, the marketing and transportation facilities.

The demand for Canadian fruit in the export market and in those parts of Canada where its production is either slight or non-existent, is a very heavy one, and one that will continue to grow and expand as the population increases and

the quality of the product continues to improve. When one realizes that the cost of supplying this demand depends to a great extent upon the distance between orchard and shipping point, upon the care and dispatch with which the transportation companies handle the shipments, and upon the tariffs which these companies demand from the shipper, then the importance of these features cannot fail to impress itself upon the would-be grower. These conditions do not apply so strongly to local markets, but even in cases where the demand is purely a local one, it is of the greatest importance to have the orchard site located to good advantage, so far as its proximiity to market is concerned.

The three main factors to be considered in selecting an orchard site have now been outlined, viz., the classes of fruit to be grown, the soil and climatic conditions, and the marketing and transportation facilities; if the prospective grower bears these well in mind, and realizes their importance, he will be taking a wide step towards successfully establishing himself in one or other of the fruit-growing sections of Canada.

Selection of Trees.

Having selected a suitable area of land upon which the orchard is to be established, and having given the soil the necessary preparation, the question of securing suitable trees presents itself, and is one which very often causes growers a great deal of trouble and ultimate monetary loss.

Throughout the entire Dominion, wherever fruit is grown in an extensive way, there may be found reliable nursery firms from whom growers can obtain young stock of any of the standard varieties of fruit, of good quality and suitable for the locality where they are to be planted. In spite of this, it is a deplorable fact that hundreds of growers have secured their stock through so-called 'travelling agents.' As a result of this, a great many have found that when their orchards came into bearing, they contained a considerable number of trees of unprofitable varieties and comparatively few of those standard sorts which they had ordered. This state of affairs is very unfortunate, and should be avoided as much as possible, for while it is true that some of these agents are representing well-known firms, and are perfectly reliable, yet their utility is being handicapped by others who are travelling under a false flag. The unsuspecting grower is impressed with the highly coloured 'cuts' which the latter shows him, and places his order. The agent in his turn, taking advantage of the fact that it is difficult to distinguish between varieties until they bear fruit may, and frequently does, fill the greater part of the order with poor stock of equally poor varieties.

Fortunately substitution of this kind is not so prevalent as formerly, but even now the grower would be much safer, unless he is certain that the agent is honest, to deal direct with the nearest reliable nursery firm wherever it is possible to do so. Where co-operative societies are in existence, orders may be pooled to very great advantage.

Although it is now generally recognized that planting in the spring is preferable to fall planting for most districts, all orders for trees should be placed some time in advance so as to assure an early delivery of stock. In some cases it may be necessary to secure the trees in the fall and heel them in over winter, rather than run the risk of having them arrive too late in the spring. Medium sized trees with a good root system, are preferable to very large stock and can usually be secured cheaper and more easily, and are much more likely to give satisfaction.

Planting.

Planting an orchard is important because it means laying the foundation upon which a superstruction will be reared that is intended to last and be a thing of beauty for many years. Mistakes made at this time will be serious and very hard to overcome as time goes on.

Granted that a suitable location has been chosen and that care has been exercised in the selection of the trees, both as to varieties and as to the quality of the stock, the next thing is to get them well established in the place where they are to grow.

It is desirable, if at all possible, to have the ground well prepared the previous season, as by so doing, delay and disappointment in the spring may to a large extent be obviated. Frequently a few days' delay at the time of planting may mean the difference between failure and success.

Having decided upon the most satisfactory distance apart at which to set the trees, which depends upon the variety concerned the tendency frequently being to plant too closely the trees should be carefully pruned, taking off all surplus and broken roots. In the case of peaches, the best orchardists trim the tops to a whip not more than 12 to 18 inches in length. For apples, pears, plums and cherries, a few short side spurs are preferable, as this usually allows the formation of a more satisfactory head. The former practice was to head the trees from four to five feet from the ground, and the majority of the eastern orchards of bearing age, are of this character. No one advocates this method at the present time. Low heading is the vogue as it has many advantages over the old method and few disadvantages.

A good large hole should be dug, and one of the various types of planting boards should be used for accuracy in setting. When filling the hole, the first few shovels of earth should be tightly packed and the top put in loosely to act as a mulch in conserving soil moisture. It is needless to say that every care should be taken to avoid unnecessary exposure of the roots to the sun and wind while planting, as many trees are annually killed in this way. There is a satisfaction arising from the realization of work well done, which much more than compensates for a little extra time taken, even in the rush of a busy spring season when calls are numerous on every hand. If possible, an extra mulch of barnyard manure or straw, should be provided as an additional safeguard until the trees become established.

Cultivation should be begun as soon as practicable after the trees are set out, and the more frequently subsequent cultivations are given, the better will the growth of the trees be encouraged.

For the first two or three years no great harm will be done by planting a portion of the ground between the trees with some kind of a cultivated crop which will not draw too heavily on the moisture or fertility of the soil. In the West, however, where the largest planting of apple trees is now in progress, the trees are for the most part allowed the entire use of the land, and clean cultivation is the rule. This, however, can be carried to excess, encouraging a late soft growth, often resulting in severe winter-killing. The remedy for this is to cease cultivating about midsummer and seed down with some one of the approved cover crops, such as the clovers, tares or vetches, which will ripen the wood, protect the roots of the trees, and when turned under in the spring, add humus and nitrogen to the soil. The small grains should never be sown in a young orchard, and the practice of doing this and seeding down for a number of years, is largely responsible for the great number of sickly, unprofitable orchards that are to be seen throughout many sections of the country. Many landowners feel that they cannot afford to do without the small revenue which they hope to derive from some catch-crop on their land while the trees are growing, and as a result the trees suffer hardships from the cupidity of the owner. As stated before, there are crops which may be used to some extent for a year or two without much injury, but wheat and oats and hay are not of this character and should never be employed.

Pruning.

Annual pruning should be one of the regular occupations of the up-to-date fruitgrower There are pruners and pruners. One man goes into his orchard

with saw and axe at spasmodic intervals, and gives his orchard what he calls 'a good cleaning up.' Large and important limbs are sawn or chopped off with the idea of allowing the horses to work close to the trunk of the tree, or the centre is ruthlessly removed to let in the sun and air. After several days of such heroic (?) work, the poor bleeding, crippled orchard is left to recover from its wounds as best it may. This is not pruning, but is simply butchery, and many fine orchards have been destroyed in this way. On the other hand, if proper care is taken of an orchard from the beginning, it should rarely be necessary to remove a large limb, and when such is the case, every precaution should be taken so that the wound may heal over rapidly and with as small a scar as possible.

It sometimes happens, however, that the orchard has grown away from the owner before he is aware of it, and it then becomes necessary to bring it back within bounds. This is particularly the case in some of the older sections where San José Scale has obtained a foothold, and a process of dehorning then becomes necessary. There are many apple and peach orchards throughout Ontario where this has been practiced with good results, an entirely new head having been formed on the trees in the course of a short time. Large branches should always be cut off close to the trunk of the tree, with, if possible, a lateral, in the case of dehorning, projecting just below. Wounds should be covered with a lead paint or some preparation for protection against the weather, to encourage a rapid healing over, and to avoid an ugly scar or rotting in the centre of the tree, when large limbs have been removed.

The main object in pruning is to establish a strong, vigorous, symmetrical tree, one capable of carrying the maxium crop with the minimum strain on its various branches. An hour spent in an orchard with an experienced, intelligent pruner, will do more to illustrate and emphasize correct pruning than many laboured treatises on the subject.

Spraying.

It is only a few years since spraying has come to be considered one of the essentials of successful orcharding. To the average man, it looked like a great waste of t me in the busiest season of the year to go into the orchard and sprinkle a fine spray over the trees which might be washed away almost before morning should a rain storm set in. However, those who had tried it out and who had realized its benefits, kept steadily working away and advocating the practice. Scientists kept on studying the action of the various compounds which were proposed, until at the present time, spraying has had almost all of the uncertainties eliminated, has been reduced to an exact science, and no one expects to raise first class fruit unless his trees and vines are carefully sprayed according to approved methods.

Large plants have been erected for the exclusive manufacture of spray pu ıps both hand and power, and factories have been established in many places which make nothing else but standard spray mixtures.

A solution of lime and sulphur, combined with a certain proportion of arsenate of lead, has become the panacea of the fruitgrower for nearly all troubles which threaten his orchard, be they insect or fungous. 'Spraying without ceasing' has become the watchword and woe betide him who, when the time comes to dispose of his crop, has neglected this part of the care of his orchard. The inspector will be after him, the buyer will neglect him, and the general public will roundly censure him because his product will not by any means have the quality which careful, thorough spraying would have insured.

Spraying calendars issued in bulletin form by the Departments of the Agricultural Colleges and Experimental Farms, and also by the manufacturers of appliance and spray materials, give in detail the most approved formulas which

latest experience has endorsed, and also the dates most suitable for the different applications. These may be had upon request and should be secured and studied by every owner of an orchard, large or small.

Handling of Fruit.

Very frequently fruit of excellent quality, that has been produced at the expense of infinite pains and effort, has been greatly depreciated in value, if not entirely ruined as a merchantable product, by the carelessness or ignorance of those engaged in gathering the crop. Perhaps no operation in the process of exchanging the products of the farm for adequate returns demands more careful oversight or is more important, than that of harvesting. One of the great advantages of the modern custom of 'heading low' is evident in the ease with which the crop may be gathered without the necessity for the use of long ladders or other means for reaching the tops of high trees.

It is quite possible for the experienced picker to gather fruit expeditiously and at the same time with judgment and care, so as to avoid bruising, either with the hands or in the receptacle that may be used to trasport it to the packing house. Many different packages are in use for the latter purpose. It is essential that they be strong, light, easily handled, and if possible, for the finer fruits at least, protected in some way, so that the fruit may not come in contact with rough or uneven surfaces. The slightest finger mark, or bruise, arising from some seeming unimportant cause, will frequently result in a specimen of fruit reaching the market in a decayed or spotted condition, thus scaling down the value of the entire package to a very great extent; consequently the utmost care in picking is not only desirable, but absolutely essential.

The practice of grading fruit, both as to the size, colour and quality, has been more generally adopted by Western fruitgrowers and much of their success in commanding a superior price for their fruit, has been brought about from this cause. Confidence has been established in their grades in the minds of the public, and consequently f.o.b. sales and repeat orders have become quite customary. This is as it should be, and just as soon as the average fruitgrower becomes seized with the value of an established reputation for uniform grading and packing, so soon will the general reputation of Canadian fruit be advanced to that extent, and a large part of the difficulty sometimes experienced in making direct sales eliminated.

There is room for great improvement along this line. From one end of the Dominion to the other, complaints have been numerous, both from the wholesale and retail trade, and from the consuming public, as to the difficulty that is experienced in securing packages of fruit of a uniform good quality. This condition is no doubt very much aggravated in the case of long-distance shipments, as what might seem but slight injuries or imperfections at the time of packing, rapidly assume greater proportions as time goes on until the whole package shows serious depreciation and waste. All the overhead charges on a package of fruit are the same, irrespective of the quality of the contents, and for this reason alone, if for no other, it is unprofitable to attempt to 'palm off' an inferior product, as such practices eventually react upon the shipper to his disadvantage.

Where complaints are so universal with regard to the grading and packing of fruit for the market, there is no doubt whatever that there must be some foundation for them. The efforts that are being put forth to educate the people in regard to the best methods in handling fruit, ought to be productive of very important results, and should be encouraged and extended. A strong public sentiment should be also aroused amongst the fruitgrowers themselves, which will not look upon practices of this kind with any degree of tolerance whether they arise from carelessness and ignorance or are the result of intention to deceive.

Different sections of this country are using packages of a varied character, and to some extent we become creatures of habit in this respect. A general

principle, however, may be laid down. Select such packages as your trade demands, bearing always in mind that fine fruit will justify a little extra expense in the use of an attractive package, one that is substantial and suitable for the class of fruit which is being offered. While the contents should be above reproach a neat handy package will add much to the market value of the product.

Eastern apple districts are wedded to the barrel, and when properly packed, the standard varieties usually carry well in this package. For our finer and more delicate dessert sorts, however, the box package should be adopted, and the fruit wrapped in paper. This method will give infinitely better results to all concerned.

A comparison of the average prices for fruit packed in boxes in the Western States and British Columbia, with the prices obtained for barreled fruit, in the Eastern States, Ontario and Nova Scotia, is very clear evidence of the advantage of careful packing in the smaller package for all apples of fancy quality. It is not desirable, nor will it be profitable to put inferior apples in boxes, as the public are looking for and expecting fancy fruit only in a package of this kind.

The question of uniform sizes of standard packages of various kinds, has been the subject for discussion among fruitgrowers for many years, and has also been dealt with by legislation, as a result of the recommendations of the Dominion Conference of Fruitgrowers. It is desirable that unanimous conclusions be arrived at in regard to this feature of the fruit trade, as uniformity in this respect throughout the Dominion would assist greatly in facilitating business between the provinces, as well as on foreign markets, would cheapen to a considerable extent the cost of packages which is quite an important item and would do away with a great deal of the confusion and dissatisfaction which frequently prevails.

MARKETING FRUIT.

The proper and profitable disposal of a crop of fruit after it has been produced, is a question that should at once interest anyone who contemplates embarking on an enterprise of this kind. It is just here that many persons fail and in consequence come to the conclusion that fruitgrowing is not as satisfactory from a monetary standpoint as they had been led to believe.

It must be admitted that considerable judgment and common sense are necessary in the marketing of a product so varied and so perishable as that from the orchard or garden. The man who has a commodity to dispose of that is of a more stable character, can bide his time and await a suitable market before offering it to the public. Not so the producer of fruit. It must be placed in the consumers' hands immediately it is ready, in good condition and, as nearly as may be, with the bloom and appearance with which nature has endowed it. To the extent that failure is experienced in accomplishing this result, more or less serious financial loss will follow. Thus the question of available markets and ease of access to them is of extreme importance.

Fortunately for the fruit industry of Canada, conditions of late years have been such that the markets have not only been able to absorb, at fair prices, what domestic fruit has been offered, but have clamoured for more, and this demand has created a very large trade from the south, both in the citrous and other tropical fruits which we do not produce, and also in many of the deciduous fruits which, under proper conditions, should be more largely supplied throughout the entire season by our own people. This trade will be taken care of in a much more satisfactory manner just as soon as Canadian fruitgrowers become more fully alive to the situation, and to the possibilities that are within their grasp in this respect.

Broadly speaking, there are four classes of markets open to the Canadian fruitgrower, which may be considered under the following heads or divisions:—

1. Local Markets.

Whenever one is so situated that his fruit can be disposed of locally, and the area under crop is not too great to prevent this method of sale, it is almost certain to prove profitable and satisfactory, since the question of packing, packages, transportation and middlemen, are largely eliminated, and the producer gets close to the ultimate consumer, generally to their mutual satisfaction. The question is frequently asked, can a man with a family and with moderate means make a respectable living from a small holding in this country by growing fruit? This question may be answered emphatically in the affirmative, provided he is willing to carry out the task he has undertaken with energy and determination. Numerous instances may be cited where men are doing far better on small holdings under systematic intensive fruit culture, than their more pretentious neighbours, who may be the nominal owners of broad acres often cultivated in a desultory or indifferent manner. Many sections of Canada at the present time furnish ideal conditions for entering upon the culture of fruits, particularly the various small fruits, on moderate holdings, with first class markets right at hand where ready sales may be made for all the fruit that may be offered for years to come. Such sections offer very attractive prospects to the man of small means who has a desire to be his own landlord.

2. Cities and Large Towns.

While Canada is by no means densely populated and our large centres of population not very numerous as yet, an important market has been found in the large towns and cities of Ontario and the Eastern Provinces for Canadian grown fruit. The habit of eating fruit has taken a firm hold, not only with the wealthier classes of the people, but also with the larger number of those in the humbler walks of life. It is well that such is the case, for the medicinal qualities of fruit as a portion of the regular diet are well recognized and should be encouraged in every way. The fact that large quantities of fruit have been available at reasonable prices has been a great factor in fostering this habit amongst the people. Occasional periods when, from some cause or another, there has been a temporary glut causing low prices, and for the moment, unprofitable returns to the grower, have not proved an unmixed evil, inasmuch as at such times, a demand is created which continues, and reacts beneficially on those who are called upon to sustain temporary loss. With better facilities for receiving and handling at terminal points, and with more intelligent distribution, it is becoming yearly more easily possible to supply our larger centres with regular and continuous supplies of fruits in their season. This trade is capable, under the careful co-operation of the grower, the transportation companies, and the dealers, of very great expansion, and provides a most important outlet for the products of many who are engaging in fruit culture in a more extensive way than those mentioned in a previous paragraph.

Mention must be made here of an important feature of consumptive demand that has arisen during the last few years and has attained such proportions that Canada claims to have the largest organization of the kind in the British Empire, if not in the world. This consists of the preservation of fruits and vegetables in glass or tin cans, an industry that has grown and developed in Canada with remarkable rapidity, and one that furnishes a ready market right at hand for large quantities of fruits and vegetables of all kinds.

3. The Prairie Markets.

While the cities and large towns of the East have for many years consumed the major portion of the surplus fruit produced in Canada, with the possible exception of apples; a market has been opened up in the last decade which seems likely to absorb for a good many years to come and at fair prices, an

increasing portion of those fruits which will bear long-distance transportion. Such fruits can be produced throughout the various districts in Canada where fruitgrowing is extensively carried on, and it seems doubtful whether even the increased plantings that are now going on will be able to keep pace with the enormous demand from the great Prairie Provinces which are now so rapidly filling up, and which will not for many years, if ever, produce any of the standard large fruits in a commercial way.

This vast country, of which only the fringe has been occupied, is even now absorbing whole trainloads of fruit during the season. With more favourable transportation facilities, which will be provided by the new trans-continental roads entering this territory, a more reasonable tariff for carriage, better methods of packing and loading, and more rapid transportation, this trade is capable of expansion beyond the most sanguine expectations.

In the year 1906, the fruitgrowers of the Niagara district, under the direction of the Board of Railway Commissioners, arranged for a series of experimental car-load shipments of mixed tender fruits to the city of Winnipeg, each one accompanied by a practical fruitgrower, in order to ascertain just what conditions were necessary to place this trade on a satisfactory basis. From that beginning the trade has steadily grown until several hundred cars of Ontario tender fruit were forwarded during the past season, some of them as far west as Calgary and Edmonton, while many hundreds of cars of Ontario apples are now finding a market in this immense territory. British Columbia fruitgrowers, owing to their proximity to the western prairie districts are finding this market particularly interesting and valuable, and have for several years been forwarding large quantities of fruits of all kinds with considerable success. During the past season also, owing to their extraordinary large crop of apples, the men of the east in the famous Annapolis Valley of Nova Scotia, cast an eye on this market, and to such a purpose that for the first time in the history of the trade they were able not only to place their apples in the western market, but succeeded in accomplishing a very wide distribution of a considerable quantity, which was well received and which will open the way for a large increase in future years.

As has already been stated, with proper handling, reasonable railroad tariffs, and efficient distribution, the market is in a position to care for a very great increase in the output of fruit from British Columbia, Ontario, Quebec and Nova Scotia for many years to come.

4. Foreign Markets.

So far, reference has only been made to the capacity of Canadian markets to take care of the supply of Canadian fruits. We are, however, not confined to these alone. Canadian enterprise has not only to some extent invaded the markets of our neighbours to the south with certain classes of our fruits notwithstanding the tariff barrier, but for years the markets of Great Britain and the Continent have depended largely on Canadian apples for a considerable portion of their supply, and the fact that these apples usually command a range of one or two shillings in advance of similar apples from other countries gives evidence of the esteem in which they are held in the British and Continental markets.

Nor is this all. Shipments have been made to South Africa, Australia, and New Zealand, and have even found their way to China and Japan.

The overseas trade in fruits is not confined to apples alone. Pears and peaches have contributed to the importance of this trade, more particularly the former, which have found a ready sale on the London, Liverpool and Glasgow markets for a number of years. With regard to peaches, the experimental shipments made during the last two or three years under the supervision of the Department of Agriculture of the Dominion and of the Province of Ontario on a comparatively large scale, supplemented by the efforts of several enterprising growers, have clearly demonstrated that several varieties of our best peaches

may be successfully put on the English market, and find a ready sale in quantity at fair prices. While everyone may not be able to make a success of this business to those who will study the market and adapt themselves to the conditions there is a good prospect for an outlet in this way for considerable quantities of peaches.

Co-operative associations are springing up in the principal districts where fruit is being grown, and the establishment of central packing houses have been features of the past few years. These organizations have done much, and will do even more, to place Canadian fruit in the position where it rightfully belongs. The pioneer movement along this line took shape in Ontario, and while at first there were a good many difficulties to overcome, and some disappointments were encountered, there are, at the present time, a number of very flourishing and important associations in the principal fruit sections of Ontario, and the other provinces are falling in line and organizing in the same way.

One of the chief difficulties in the way of successful co-operation is that of persuading the average man to throw in his lot with the association and waive his individuality for the general good. Petty jealousies arise, attempts are made by interested parties to break up the association, and frequently, when careful management has not been the order of the day, temporary losses have occurred which have given a setback to the movement.

Notwithstanding all this, co-operation among the fruitgrowers is on a stronger footing to-day than ever before, and with the added knowledge of past experience, should advance with rapid strides during the next few years, until every section will have its co-operative society, and will be sending out its fruit under regular recognized standards of grade and quality.

COLD STORAGE.

The perishable nature of many kinds of fruit has led thoughtful men to enquire into possible methods for lengthening out the season during which the fruit may be put on the market in good condition, thus avoiding temporary gluts and serious congestion. This opens up the whole question of cold storage facilities and a great deal of 'pro' and 'con' matter has been written on the subject. It will be sufficient in this report to emphasize the fact that, in order to properly distribute large quantities of fruit throughout the country in a satisfactory manner, first class cold storage facilities on the farm, at the shipping station, in connection with the rolling stock of the railways, as well as in the holds of ocean steamers, are absolutely necessary. So important has this subject appeared to the Federal Government that a special department has been established to give careful supervision, and a measure of assistance, to any intelligent movement in this respect.

Every large fruitgrower should have upon his farm a suitable building where tender and perishable fruits could be at once stored and cooled off in the warm season, before being prepared for shipment. At all important shipping stations adequate provision should be made for the reception of fruit in similar or more commodious warehouses, where uniform cool temperatures might be maintained. These buildings may be operated either by the use of ice or by means of what is known as mechanical refrigeration. The latter involves a greater initial expenditure, but is probably better in the long run when the warehouse is of large capacity.

A system of pre-cooling fruit on a large scale has been adopted in California during the past few years, and so far has been reported as being very successful. By this system all latent or natural heat is removed from the fruit as quickly as possible, by cooling the packages in a cooling room before loading into the car or, when the capacity is large enough, running the entire car into the room extracting the heat therefrom, and immediately closing up. The car is then forwarded on its journey and great success is reported as attending this method

when the cooling has been sufficiently performed and when the refrigerator cars are properly constructed so as to maintain the temperature at a reasonably uniform state.

This process is attracting a great deal of attention at the present time wherever tender fruits are produced in quantities, and no doubt will be tried out in Canada before very long. Should it prove successful, one of the very serious problems in connection with the successful transportation of tender fruits, will have been solved. Further experiments in this connection will therefore be watched with great interest.

TRANSPORTATION.

Some of the more important fruit-producing sections of Canada are not only separated from each other by considerable distances, but are so situated that the bulk of the output must be transported by rail or boat to the ultimate market. For this reason the transportation of fruit has always been an important matter for thought and discussion whenever fruitgrowers have met to devise means for improving their position and circumstances.

In this respect considerable progress has been made. The large transportation companies now look upon the fruit trade as an important branch of their business and while little attention was paid to the offerings of fruit a few years ago, a keen rivalry amongst the parties interested is now in evidence wherever competitive conditions make it necessary. This situation has contributed largely to an amelioration of many of the difficulties under which fruit was formerly handled, assisted as it has been by the Department of Agriculture, and the sympathetic attitude of the Board of Railway Commissioners, the appointment of whom, by the way, was first advocated by the fruitgrowers of Ontario.

While conditions are not by any means ideal, while many matters require further consideration, and while the service will admit of great improvement in many ways, it must be freely recognized that the carriage of fruit has undergone very great improvement in recent years. Much, however, remains to be done. There is a lamentable lack of suitable equipment for the handling of fruit, both by freight and express. Cars that are equipped with proper means of ventilation are few and far between. Many of the refrigerator cars that are supplied are antiquated, out of repair, and utterly unable to perform the efficient service required of them, and it often happens that loss and damage result through inability of the companies to supply sufficient cars of any type to take care of the trade at critical seasons of the year.

Terminal facilities in some of the large centres are entirely inadequate for the prompt and efficient delivery of cars at points of destination, thus causing considerable delay in the discharge of tender fruits and frequently resulting in serious loss to the shipper.

Another difficulty that frequently arises, more especially with long-distance shipments, is undue delay in transit, cars being detained so long on the road that their contents, if not totally destroyed, have become seriously damaged. In regard to this, a time schedule of so many miles per hour has been suggested, which, if not maintained, should place the onus on the company falling down, if loss and damage resulted. This would appear to be a fair and reasonable solution of this feature of the problem.

With reference to shipments of fruit by the express service, there has been a controversy for many years between the express companies and the fruit shippers and at times feeling has run high between the interested parties. This service is indispensable for the prompt and efficient handling of fruit, more especially the smaller fruits and those which require immediate consumption during the summer months. The carriage of fruit during the season is an extremely important and profitable part of the express [illegible]nies' business, demanding a large increase in the regular staff, and th[illegible]g of numerous

special trains to handle the large quantity of fruit [illegible]fered. Apart from the general opinion that many of the rates levied for [illegible] service are excessive, the fact that the packages must be handled rapidly a[illegible] that a large additional staff of inexperienced men must be employed tempora[illegible] is no doubt the cause of much of the complaint that arises on account of dama[illegible] and missing packages, which results in loss to the shipper and annoyance to [illegible] consignee. If some plan could be devised whereby skilled, trained and [illegible]liable employees only would be attached to the service, a great improveme[illegible] might be effected in this respect. In view of the revelations as to the huge [illegible]venues derived by the express companies in Canada, it would seem that the [illegible] employees might be better paid, thus securing a better class of men, and t[illegible] the rates might be materially reduced, and still a fair margin of profit rema[illegible] for the stockholders of the company.

These various objections have been brought to the attention of the railway officials from time to time, and considerable effort has been made to improve conditions. Increased railway constructio[illegible] and [illegible]ment competition, improved terminal facilities now under wa[illegible] [illegible]es, and a steady insistence upon betterments, by the fruit [illegible] will do much to aid in the desirable object of putting tr[illegible] [illegible]tter condition than heretofore.

The various officials of the chief trunk [illegible] of this comp[illegible] from whose territory this traffic originates, are realizing [illegible] ort[illegible] [illegible]g all in their power to improve the facilities for hand[illegible] [illegible] frequently expressed their desire to be informed of an[illegible] [illegible] to receive suggestions calculated to bet[illegible] the ser[illegible] [illegible] that such complaints will have careful investigation [illegible] [illegible]ticable will be put into effect.

The Board of Railway Commissioners, [illegible]pointe[illegible] few years ago by th[illegible] Federal Government, has, since its organiz[illegible] [illegible] service to Canada in adjusting many questions [illegible] the railways and the shippers. The fruit industry, [illegible] [illegible] distress for all its grievances, has reaped a very substantia[illegible] benefit [illegible] decisions of the Board.

In many respects ocean transportat[illegible] by th[illegible] principal [illegible]nes catering to this trade, is very much in advance of [illegible] railw[illegible] Cold storage compartments, devices for forcing d[illegible] [illegible]ugh the holds of the steamer, more careful loading and [illegible]oadi[illegible] [illegible] the ports and harbours, have all been features of t[illegible] trade [illegible] have done a great deal to assist in landing Canadian fruit in th[illegible] [illegible]rket in a condition far superior to that of former years. Very mu[illegible] [illegible]t for the evident improvement in ocean transportation must be gi[illegible] [illegible]fleets of the Department of Agriculture and the various officials [illegible] an oversight in connection with this service. A very close watch ha[illegible] [illegible]t on all the phases of this trade from the time the goods are delivered [illegible] the dock[illegible] until they have been handed over to the consignee on the other s[illegible] Carefu[illegible] note has been made of everything that might tend to assist in landing the sh[illegible]ment in good condition. Vessel owners have had their attention called t[illegible]ny defects in handling or storage, and as a result complaints are now co[illegible]ratively rare of damage resulting from negligence or lack of prop[illegible] conditions on board the best ocean liners sailing from Canadian ports.

LEGISLATION.

There have been many statutes enacted from time to time, both provincial and federal, that have had for their object the improvement of certain cond[illegible]ons which have arisen that made the strong arm of the law seem necessar[illegible]d expedient. The most important of these, perhaps, have had to do with gu-

lations for the control and extermination of insects and diseases which have either obtained a foothold or were likely to do so.

British Columbia, profiting no doubt by the sad experience of the older provinces, has been more signally successful than any other province in putting into effect enactments of this kind and the fruit districts of the province are to-day practically free from many of the insect pests which are causing immense loss and injury elsewhere. Much credit for this state of affairs must be given to Mr. Thomas Cunningham, the Chief Fruit Pest Inspector for British Columbia, who has been faithful and untiring in his efforts to enforce the laws of this province against the entrance and spread of fruit pests.

The Province of Ontario has excellent legislation in regard to noxious insects and fungous diseases, but it must be admitted, and this statement will also apply with even greater force to the eastern provinces, that public sentiment has not been sufficiently active here to see that the laws of this character have been properly put into effect and enforced. In consequence, many sections have been allowed to become hotbeds and breeding places of these pests, with little or no aggressive or determined effort to eradicate them.

Many other laws also have been put on the statute books, such as those to regulate the size and class of package to be used, and those intended to assist the industry, either financially or otherwise, in some one or other of its various phases.

Last but not least, and one about which there is still some difference of opinion, is that law entitled 'The Inspection and Sale Act,' but previously and familiarly known as 'The Fruit Marks Act.' This enactment was the result of a condition which had gradually increased in gravity until the credit and standing of Canadian fruit, in foreign markets more particularly, was not only in jeopardy but in danger of being entirely lost.

Prominent fruitgrowers in Ontario, from which province the major shipments for export were being sent, met and discussed the situation and called upon the government to enact such legislation as would tend to remedy this state of affairs and restore Canadian apples to their rightful place in the estimation of the foreign markets.

While not at first, and possibly not yet, perfect in its text or administration, it is clearly evident that the careful and judicious administration of this Act by the chief of the fruit division, has accomplished very much of what its advocates hoped for it, by again establishing confidence in the pack of Canadian fruit, and the various grades of fruit included in the Act have now a recognized standing in the markets of the world.

Owing to the fact that there are still some shippers who are deliberately taking advantage of the saving clauses in regard to the grading of fruit, which were inserted solely to protect the packer from inadvertence or inability to carry out the intent of the Act to its fullest extent, it is a question whether these clauses should not be either eliminated or at least considerably modified in connection with the No. 1 and No. 2 grades of fruit.

The reputation which some sections in the west have obtained for careful grading and packing of apples in boxes, and the monetary value attached thereto, to say nothing of the satisfaction experienced, should give ample food for thought to many of our Canadian packers.

EDUCATIONAL FACILITIES.

Within comparatively recent years the prosperity of fruitgrowing in Canada has been largely aided by the establishment of educational institutions of one form or another.

Throughout the rural districts of this Dominion, from east to west, the observant traveller cannot fail to see two contrasting pictures. On the one hand there is the man who is working in a conscientious and painstaking manner,

coupled with a knowledge of the 'why' as well as the 'how', on the one hand is the man who mechanically grinds away his existence, who is pessimistic of the future and who is satisfied so long as he 'makes a living.' One is the man who is cheerful and cannot fail to succeed, the other the man of doleful mien who expects nothing, and who, in all probability will not be disappointed.

To lessen the number of the latter type and to increase that of the former a number of institutions have been established in Canada, some of the most important of which may be mentioned.

Agricultural Colleges.

There are in Canada at the present time, four English agricultural colleges—The Ontario Agricultural College at Guelph, Macdonald College at Ste. Anne de Bellevue, Que., Truro Agricultural College at Truro, N.S., and the Manitoba Agricultural College at Winnipeg. There are also two French agricultural colleges in the province of Quebec at La Trappe and at Ste. Anne de le Pocatiere, both of which are doing valuable work.

Not only do these colleges train the student in such a manner that he returns to the farm, or to professional life as the case may be, with a wider knowledge of both the practical and the scientific sides of his own particular subject, but they also give him a thorough training in many other subjects which, while not perhaps directly associated with farming or fruitgrowing, yet should not be left out of any up-to-date agricultural curriculum.

The horticultural departments of these colleges are under the direction of men who are thoroughly trained in their subjects and in imparting their knowledge to others. Practical work is given to the students in all horticultural operations, supplemented by lectures in the classroom. In the laboratories a scientific study is made of entomology, botany, pathology, chemistry, physics, bacteriology, &c., in fact of all those subjects which help to explain many of the phenomena of fruit culture, the troubles to be encountered and the remedial measures to be adopted.

Field work is also carried on quite extensively. Experiments are conducted with the object of securing reliable data along all lines of orcharding, the most suitable varieties, the best methods of cultivation, the most valuable spray mixtures, and so forth. Such information is also published either in bulletins or in some distributive form, so that it may be of value to outside interested parties as well as the students in attendance.

During the winter months, short courses are held in horticulture, animal and cereal husbandry, poultry-keeping and other practical subjects and to men who cannot afford to spend a whole winter at one of these colleges, such courses are extremely useful, for while they cannot include many of the details connected with these various subjects, yet they enable the practical man to secure a good deal of valuable information which he may subsequently use to good advantage.

These colleges can naturally only be of value to a very limited number of fruitgrowers and others, yet they are one of the greatest assets of this agricultural country. It is sincerely to be hoped that the number at present in operation will be doubled in the not too distant future, and that they may receive all the support which, from their very nature and purpose, they fully deserve.

Experimental Farms.

Since the inception of the Central Experimental Farm at Ottawa in 1888, the Federal Government, realizing the valuable service which such institutions were likely to perform, has established a number of branch farms in various parts of the Dominion, until to-day there are fourteen such farms or stations either in operation or in a state of development. These are located at the following places in the various provinces:—

Central Experimental Farm	Ottawa.
Experimental Station	Charlottetown, P.E.I
" Farm	Nappan, N.S.
" Station	Kentville, N.S.
" "	Ste. Anne de la Pocatière, Que.
" "	Cap Rouge, Que.
" Farm	Brandon, Man.
" Station	Scott, Sask.
" Farm	Indian Head, Sask.
" Station	Rosthern, Sask.
" "	Lethbridge, Alta.
" "	Lacombe, Alta.
" Farm	Agassiz, B.C.
" Station	Invermere, B.C.

Of the above list, there are four stations which are not as yet in full operation, namely, those at Scott, Ste. Anne de la Pocatière, Kentville, and Invermere. The station at Cap Rouge was only taken over on January 1st, 1911, but considerable work has already been planned and some is already in progress. In the course of this investigation the new farm at Kentville was visited on August 7th, where clearing was in progress under the management of Mr. J. R. Starr. The aim is to have the east side devoted to orchard work, and the west side is to be used for purely agricultural purposes.

The farms at Nappan, Charlottetown, Lethbridge, and Agassiz, were also personally visited, and in every case were found to be officered by capable enthusiastic men engaged in solving the problems of their own particular district.

In the Provinces of Ontario and British Columbia, a comparatively new departure has been undertaken during the past two or three years, which consists in the appointment of college graduates to the position of district representatives in any county or district making a request for the services of a trained specialist and complying with the conditions.

This feature of educational work has proved very satisfactory and these officers have been able to render efficient service in all the fruit sections to which they have been appointed. The demand is exceeding the supply and it has not been found possible to furnish all the men required for this work as yet.

Conventions of the various fruitgrowers' organizations are held at stated intervals, extending over several days, and frequent fruit institute sessions are arranged for during the winter season at all of which live topics of interest to the fruit industry are discussed and much valuable information disseminated.

SOME OF THE DIFFICULTIES.

The road to success in fruitgrowing, as in any other enterprise, cannot be followed without meeting numerous obstacles, which in a great many cases may offer serious opposition. These difficulties are variable in their nature. They may be due to insects, to bacterial or fungous diseases, to soil and climatic conditions, or to numerous other causes.

While there are a few of these troubles which cannot be readily controlled, yet in the majority of cases the fruitgrower, if he practices approved methods, will not find his ultimate success hindered to a very serious extent by these temporary adversities.

There are an immense number of insects which ravage orchards and depend for their existence either upon the trees or upon the fruit. In the older fruitgrowing sections of Canada these pests are extremely troublesome, and it would seem to be practically impossible to entirely eradicate them, although a concentrated effort on the part of the fruitgrowers should materially assist in keeping them within bounds.

Wolf River apple tree. Mr. Stirling's orchard, Salmon Arm, B.C.

Where water is King. Method of artificial irrigation, Okanagan Lake district, British Columbia.

In the newer sections of British Columbia, however, many of the more serious insects, notably the codling moth, have not as yet obtained a serious foothold, and too much emphasis cannot be laid upon the importance of keeping these localities as free as possible from their ravages. The most rigorous and aggressive action in dealing with any insect infestation in these newly developed sections is to be highly recommended, as only by such action can the growers in those sections hope to keep free from some of the difficulties which are confronting their fellow orchardists in other parts of the country.

The San José Scale, which causes an immense annual loss to fruitgrowers in the United States, is practically confined in Canada to a small section of the Province of Ontario, and all nursery stock grown in that Province is carefully inspected and fumigated before being sent out. Up to the present time this insect has not been reported from any district in Canada other than the one mentioned, and should this pest be found in any new locality it would be the first duty of the finder to notify the proper authorities and to see that immediate steps are taken towards its eradication. When first reported in Canada, it caused considerable anxiety as to the ultimate result of its entrance and infestation, many fearing that it would gradually spread over large fruit areas and entirely destroy the orchards. Efficient methods for its control having, however, been discovered, and demonstrated, it is no longer feared as formerly since it may be readily held in check.

The 'Yellows' and 'Little Peach' are the two most serious diseases with which the peach grower has to contend, and these diseases, while in evidence for many years, are obscure in their origin and methods of spread. No remedy has as yet been discovered and the only thing to do is to learn as thoroughly as possible the symptoms attending an attack of either one, and promptly remove and destroy the trees in the early stages, thus preventing further spread as fully as possible. The same treatment applies to blight of the pear and black knot of the cherry and plum.

In some sections of Canada, occasional severe periods of protracted cold temperatures, are likely to appear at infrequent intervals and have caught the fruitgrower unprepared for their arrival. Where clean culture is practiced and continued until too late in the fall, thus inducing a soft growth of wood, and where no cover crop is provided to protect the soil and the roots of the trees in winter, grave danger of winterkilling of both root and branch arises. The remedy for this is to secure, as far as possible, well ripened thrifty wood and protect the soil with cover crops.

In the west the 'apple pit' or 'fruit pit' as it is called—being a destruction of the tissue of the apple in various spots under the skin—has caused some trouble the past few years. As it has not been found to be due to a bacterial or fungous spore but rather of a physiological character, its control has not been as yet accomplished. A good many experts are studying this disease and it is hoped that very shortly methods of control may be discovered which will prove satisfactory.

OUTLOOK FOR EXTENSION.

In view of the enormous planting of fruit trees of all kinds during recent years, the possibility or probability of over-production is a factor that should demand careful attention. There have been times within the memory of many who are still actively engaged in fruitgrowing when the prospects did not seem very flattering or bright. Thousands of bushels of apples have laid rotting in Ontario orchards, peaches and plums by the carload have been allowed to fall to the ground unharvested, small fruits in quantity have been neglected and handed over to the birds of the air, and on more than one occasion the Canadian fruitgrower has felt that his fruit plantations were more of an expense and encumbrance than a source of revenue and profit. Strange to say, at the very time

that these conditions were in evidence in one part of the country an entirely different situation was being experienced elsewhere, it being almost impossible, for weeks at a time, to secure a supply of fruit for dessert or culinary purposes in many places not too remote from the source of supply. When closely investigated, the difficulty would be found to be largely lack of proper distribution, owing to failure to anticipate a large crop, and to provide for the picking, packing and placing in the hands of consumers. If attention had been given to securing quality, and suitable arrangements made for marketing, it is quite safe to say that very little fruit in the past need have wasted in the orchards or have lacked profitable sale.

In the replies to the series of questions sent out to all parts of the country, in which an opinion was requested, as to the likelihood of over-production in fruit, almost without exception the answer was in the negative, qualified as above outlined. Careful investigation has shown that not more than ten per cent of the trees planted in the Eastern States become commercially profitable, and it is estimated that not more than twenty per cent in Oregon and Washington, and possibly a similar amount in British Columbia, are likely to reach this condition. Moreover, a number of years must elapse before an orchard will produce in quantity. The markets for fruit in city and country are increasing rapidly, the taste of the people is being cultivated for a larger use of fruit in their daily diet, and numerous large allied industries depend upon fruit for their raw material. Taking all these factors into consideration, no immmediate fear need be experienced as to disastrous results from over-production in the near future.

Reference has been made to the rapid increase and development in connection with the preservation of fruits in glass and tin. There are at present a very large number of factories engaged in this industry with an enormous annual output of fruits and vegetables. This product is distributed from one end of Canada to the other, and a considerable portion is exported annually. The factories are widespread and located in close proximity to the supply of raw material and from the fact that their contracts are made in advance and sometimes for several years ahead, the fruitgrower has a sure and definite market for his product and can devote his energies to producing a crop with the full assurance of a market already provided.

The manufacture of unfermented wine and cider, is also being taken up on a comparatively large scale in some sections, and bids fair to attain important proportions in the near future. In view of the rapidly changing sentiment of the Canadian people on the question of the use of intoxicating liquors, this industry is likely to be well sustained and become quite profitable.

A large number of evaporators have been established at strategic points where quantities of apples, which for any reason may not be adapted for shipment in their fresh state, may be put in a condition that will enable them to be transported to any part of the world.

Taking everything into consideration, the outlook for the extension and development of the fruit areas of Canada is very bright and it only remains for those whose inclination leads them in this direction, to go up and possess the land and reap the rewards of well-directed effort.

ADVANTAGE OF SMALL FRUIT FARMS.

In addition to the many other advantages which are possessed by a section of country devoted to the growing of fruits of various kinds, is the tendency to sub-divide large farms into smaller holdings. Professor Warren of Cornell University, head of the Department of Farm Management, after a thorough survey of two of the more important counties of New York State, devoted largely to general farming, sums up the limit of profitable farm management as being in inverse ratio from the smaller holdings to the farm of at least two hundred acres, under which the greatest efficiency may be obtained with a minimum of expense.

He shows by actual data that 90 per cent of the farmers in these counties whose farms do not exceed thirty acres in extent, receive less than $400 per annum net for their labour. On farms of two hundred acres and over, only one-third of the farmers receive $1,000 and over as a reward for their labour in the course of the year.

When we come to compare these figures with the average returns from a well managed fruit plantation, one year with another, there is a marked difference. Net returns from $50 to $200 per acre and even more are not at all unusual and it is safe to say, from a perusal of the replies received from over one hundred and fifty correspondents in all parts of Canada in answer to an enquiry on this subject, that at least $50 per acre, net, may be counted upon in this country from the area under fruit. In many sections farms of one and two hundred acres, which were returning their owners not more than a comfortable living while devoted to general farming, are now supporting from six to twelve families who are devoting their energies to fruit culture, and doing so successfully.

Fruitgrowing furnishes pleasant and profitable employment to all the members of the family, encourages the sub-dividing of the land into smaller holdings, gives social and educational advantages, leads to the establishment of many allied industries in the district, and in many other ways adds materially to the substantial wealth of the community.

GENERAL CONCLUSIONS.

In conclusion I wish to call the attention of the prospective fruitgrower to a few outstanding features of the situation in regard to the successful production of fruit in this country. These conclusions have been arrived at after careful study and observation of the methods and operations of many of the most progressive and successful men in the industry from one end of the Dominion to the other.

In the first place, while the growing of fruit offers ample rewards to the man of energy, patience and perseverance, there is perhaps no phase of agricultural endeavour which requires to be more closely studied and in which a wide range of information is more desirable and necessary.

There are so many varied influences at work, any one of which may prove the limiting factor in an undertaking of this kind, that it is almost essential to have considerable practical experience in actual field work, combined with a theoretical knowledge of many scientific subjects before the average man can realize to even a moderate extent the object of his ambition.

The fruit areas are so extensive and the climatic conditions so different, the soils are so dissimilar, and there are so many varieties of fruit which succeed in one locality, but which may prove an utter failure in another, that it behoves anyone beginning fruitgrowing as an occupation, to exercise the greatest care at the outset. A great deal can be learned from enquiry and close observation of the methods in use by successful men in any given district. If possible it would be well, having selected the locality which seemed best to supply the conditions sought after, to spend a season or two in active co-operation in the work on the property of such a man and thus by practical experience be partially fitted for entering upon the work of laying the foundation of a profitable fruitgrowing undertaking, with a slight idea at least, of some of the conditions involved, and the obstacles to be encountered.

Available markets are another essential consideration. No one should select a locality or enter upon the production of any class of fruit without first ascertaining the facilities for the profitable disposition of his crop when produced. Many in the past have found themselves stranded under conditions when the harvest has been abundant and of fine quality, but the means of transporting the crop to market has been woefully deficient and unsatisfactory. Fortunately much of this latter difficulty is rapidly disappearing and a much better distribu-

tion of the fruits produced is in evidence. This is largely due to the rapid increase in transportation facilities of recent years, and to the general trend to co-operate in every important fruitgrowing section, both in the purchase of supplies and in the selling of the product in car lots. Much greater progress along these lines is likely to be made in the next few years than has taken place in the past.

Transportation companies, both the large trunk companies and those of lesser degree, realize more than ever before, the magnitude of the business offering and in prospect, and its profitable character from a revenue producing standpoint, and are competing with each other for the business. This should result in better facilities, more satisfactory service, and it is hoped, lower charges for the service rendered.

It has been fully demonstrated that all known insect pests and fungous diseases may be fully controlled, and kept in check by the careful and prompt application of the approved remedies. There is therefore no good excuse for the production of diseased and inferior fruit in these days of enlightenment on this important phase of the subject. It will be only a matter of a short time when the fruitgrower who produces and attempts to market any considerable portion of this class of fruit, will be laughed out of court, and will be compelled to engage in some other occupation more suited to his abilities and powers of attainment.

Very few fruitgrowers maintain an efficient system of accounting and cost in connection with their business. This desirable and necessary department in every successful manufacturing establishment, is ignored by the majority of fruitgrowers, no doubt largely from the prevalent idea that it involves a very complicated set of books, would take a very considerable amount of time to carry out properly, and in the end would not change a result. I believe, however, that some simple system of keeping a fairly accurate account of the cost of producing each individual variety of fruit, and the relation between the cost and price received, a comparison of the profits accruing from crops produced under the very highest and most intensive culture, with those produced in the ordinary slipshod way on one's own farm, would work a greater revolution in methods and practices in a few short years, than an army of lecturers and speakers could possibly hope to accomplish. This feature of farm practice is worthy of careful consideration and if worked out in a simple, practical manner, would be productive of astonishing results.

The future of the fruit industry of Canada was never brighter than it is to-day, the prospects before those engaged in it were never more attractive, the field for extensive aggressive effort in all the fruitgrowing provinces was never more inviting. Markets are opening up which will tax the best effort, not only of those already engaged in production, but of thousands more who will be welcomed to the ranks of a class of people who in this country are recognized as a very important factor in the evolution of Canada's future greatness.

In closing this comparatively brief and incomplete review of the conditions surrounding an industry in which I have been actively engaged for more than thirty years, I desire to say that any errors, omissions or imperfect conclusions, have been mistakes of the head, and not of the heart, and I again express the hope that I may succeed in inducing at least a few of those who are not succeeding as well as they might, to occupy advanced ground in the New Horticulture in connection with the fruit industry of Canada, as well as in presenting to those who may contemplate entering upon fruitgrowing as a life work, a fair resumé of the conditions under which such an enterprise may be successfully undertaken.

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